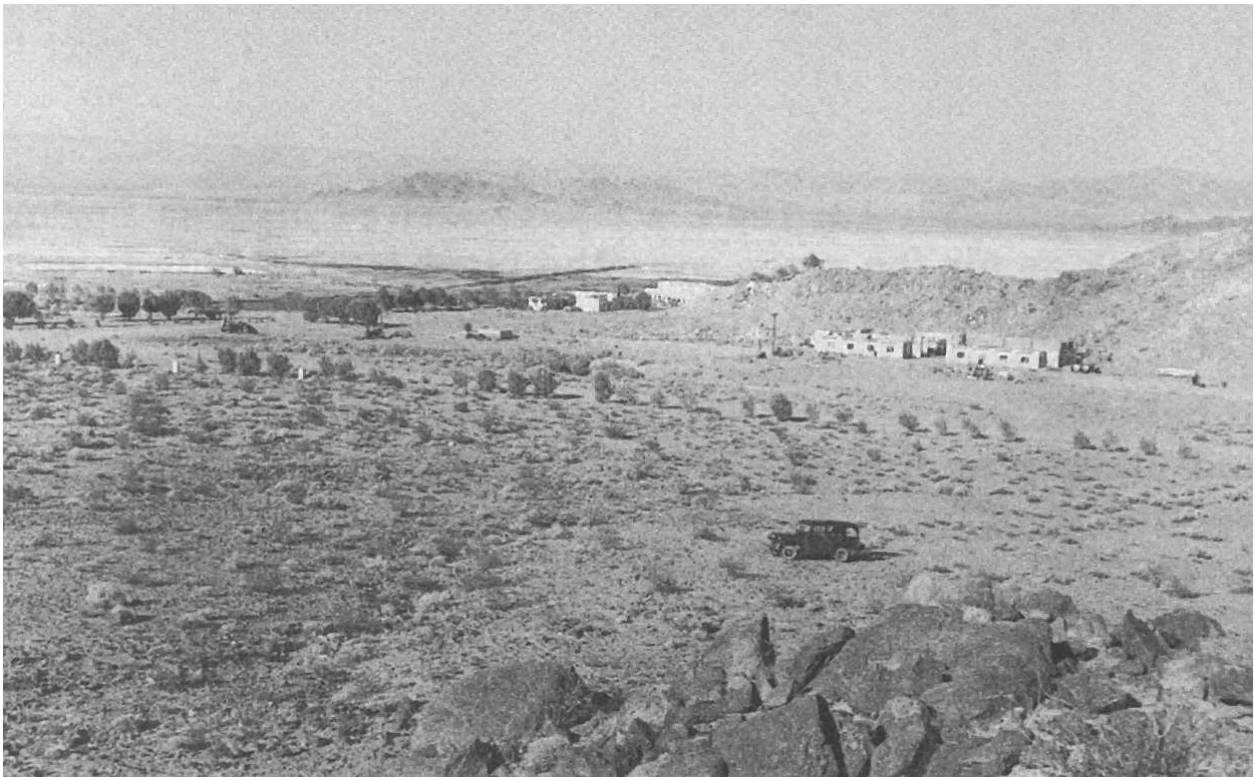

National Park Service
Cultural Landscapes Inventory
2004



Zzyzx Mineral Springs Historic District
Mojave National Preserve

Contents

Executive Summary
Landscape Description
CLI Hierarchy Description
Location Map
Boundary Description
Regional Context
Site Plan
Chronology
Statement Of Significance
History
Analysis And Evaluation
Management Information
Appendix

Executive Summary

General Introduction to the CLI

The Cultural Landscapes Inventory (CLI) is a comprehensive inventory of all historically significant landscapes within the National Park System. This evaluated inventory identifies and documents each landscape's location, physical development, significance, National Register of Historic Places eligibility, condition, as well as other valuable information for park management. Inventoried landscapes are listed on, or eligible for, the National Register of Historic Places, or otherwise treated as cultural resources. To automate the inventory, the Cultural Landscapes Automated Inventory Management System (CLAIMS) database was created in 1996. CLAIMS provides an analytical tool for querying information associated with the CLI.

The CLI, like the List of Classified Structures (LCS), assists the National Park Service (NPS) in its efforts to fulfill the identification and management requirements associated with Section 110(a) of the National Historic Preservation Act, NPS Management Policies (2001), and Director's Order #28: Cultural Resource Management (1998). Since launching the CLI nationwide, the NPS, in response to the Government Performance and Results Act (GPRA), is required to report on an annual performance plan that is tied to 6-year strategic plan. The NPS strategic plan has two goals related to cultural landscapes: condition (1a7) and progress on the CLI (1b2b). Because the CLI is the baseline of cultural landscapes in the National Park System, it serves as the vehicle for tracking these goals.

For these reasons, the Park Cultural Landscapes Program considers the completion of the CLI to be a servicewide priority. The information in the CLI is useful at all levels of the park service. At the national and regional levels it is used to inform planning efforts and budget decisions. At the park level, the CLI assists managers to plan, program, and prioritize funds. It is a record of cultural landscape treatment and management decisions and the physical narrative may be used to enhance interpretation programs.

Implementation of the CLI is coordinated on the Region/Support Office level. Each Region/Support Office creates a priority list for CLI work based on park planning needs, proposed development projects, lack of landscape documentation (which adversely affects the preservation or management of the resource), baseline information needs and Region/Support office priorities. This list is updated annually to respond to changing needs and priorities. Completed CLI records are uploaded at the end of the fiscal year to the National Center for Cultural Resources, Park Cultural Landscapes Program in Washington, DC. Only data officially entered into the National Center's CLI database is considered "certified data" for GPRA reporting.

The CLI is completed in a multi-level process with each level corresponding to a specific degree of effort and detail. From Level 0: Park Reconnaissance Survey through Level II: Landscape Analysis and Evaluation, additional information is collected, prior information is refined, and decisions are made regarding if and how to proceed. The relationship between Level 0, I, and II is direct and the CLI for a landscape or component landscape inventory unit is not considered finished until Level II is complete.

A number of steps are involved in completing a Level II inventory record. The process begins when the CLI team meets with park management and staff to clarify the purpose of the CLI and is followed by historical research, documentation, and fieldwork. Information is derived from two efforts: secondary sources that are usually available in the park's or regions' files, libraries, and archives and on-site landscape investigation(s). This information is entered into CLI database as text or graphics. A park report is generated from the database and becomes the vehicle for consultation with the park and the

SHPO/TPO.

Level III: Feature Inventory and Assessment is a distinct inventory level in the CLI and is optional. This level provides an opportunity to inventory and evaluate important landscape features identified at Level II as contributing to the significance of a landscape or component landscape, not listed on the LCS. This level allows for an individual landscape feature to be assessed and the costs associated with treatment recorded.

The ultimate goal of the Park Cultural Landscapes Program is a complete inventory of landscapes, component landscapes, and where appropriate, associated landscape features in the National Park System. The end result, when combined with the LCS, will be an inventory of all physical aspects of any given property.

Relationship between the CLI and a CLR

While there are some similarities, the CLI Level II is not the same as a Cultural Landscape Report (CLR). Using secondary sources, the CLI Level II provides information to establish historic significance by determining whether there are sufficient extant features to convey the property's historic appearance and function. The CLI includes the preliminary identification and analysis to define contributing features, but does not provide the more definitive detail contained within a CLR, which involves more in-depth research, using primary rather than secondary source material.

The CLR is a treatment document and presents recommendations on how to preserve, restore, or rehabilitate the significant landscape and its contributing features based on historical documentation, analysis of existing conditions, and the Secretary of the Interior's standards and guidelines as they apply to the treatment of historic landscapes. The CLI, on the other hand, records impacts to the landscape and condition (good, fair, poor) in consultation with park management. Stabilization costs associated with mitigating impacts may be recorded in the CLI and therefore the CLI may advise on simple and appropriate stabilization measures associated with these costs if that information is not provided elsewhere.

When the park decides to manage and treat an identified cultural landscape, a CLR may be necessary to work through the treatment options and set priorities. A historical landscape architect can assist the park in deciding the appropriate scope of work and an approach for accomplishing the CLR. When minor actions are necessary, a CLI Level II park report may provide sufficient documentation to support the Section 106 compliance process.

Park Information

Park Name: Mojave National Preserve
Administrative Unit: Mojave National Preserve
Park Organization Code: 8380
Park Alpha Code: MOJA

Property Level And CLI Number

Property Level: Landscape
Name: Zzyzx Mineral Springs Historic District
CLI Identification Number: 725129
Parent Landscape CLI ID Number: 725129

Inventory Summary

Inventory Level: Level I

Completion Status:

Level 0

Date Data Collected - Level 0: 1/15/1998
Level 0 Recorder: Rick Dorrance
Date Level 0 Entered: 1/15/1998
Level 0 Data Entry Recorder: Rick Dorrance
Level 0 Site Visit: Yes

Level I

Date Level I Data Collected: 3/23/2000
Level I Data Collection: Kimball Koch, Shaun Provencher, Mark Luellen,
Date Level I Entered: 3/23/2000
Level I Data Entry Recorder: Kimball Koch, Shaun Provencher, Mark Luellen,
Level I Site Visit: Yes

Level II

Date Level II Data Collected: 2/28/2002
Level II Data Collection: Shaun Provencher
Date Level II Entered: 9/15/2004
Level II Data Entry Recorder: Shaun Provencher
Level II Site Visit: Yes

Explanatory Narrative:

Fieldwork for the Zzyzx Mineral Springs CLI was conducted from January 16th through

19th, 2002 by Shaun Provencher. This work consisted primarily of photography, mapping, and field notes, relying heavily on an earlier draft National Register nomination for the site by Robbyn Jackson and Gordon Chappell.

Landscape Description

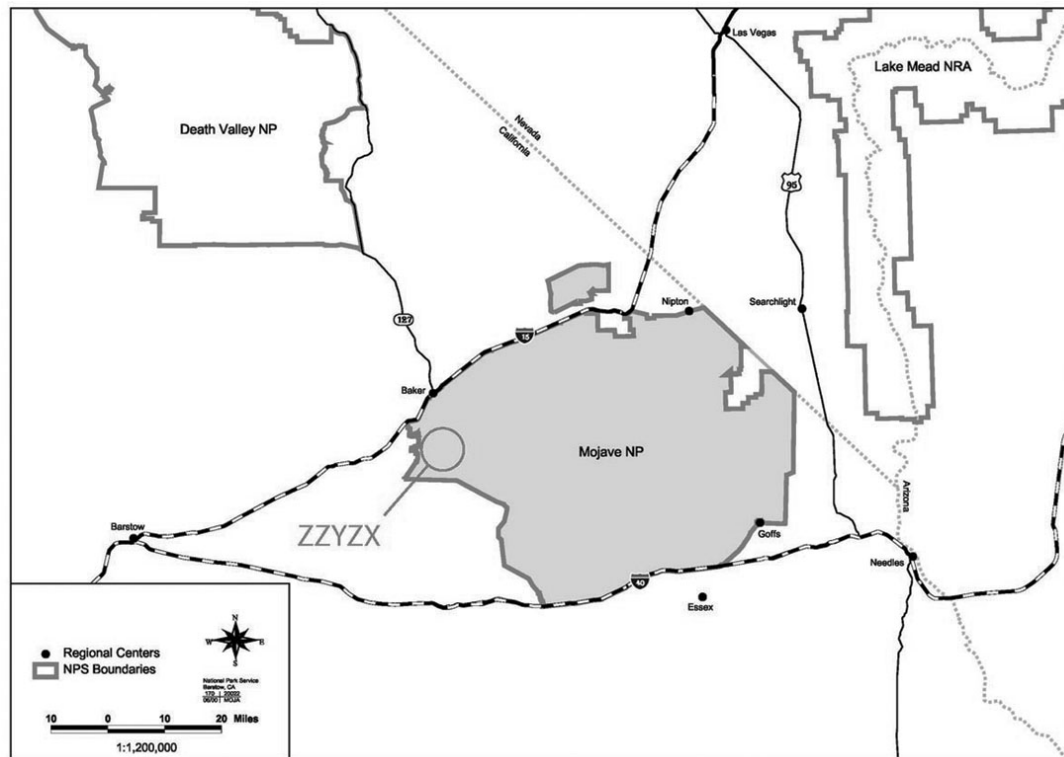
The Zzyzx Mineral Springs Historic District, known until the mid-twentieth century as Soda Springs, is an approximately 402 acre designed cultural landscape located 12 miles from Baker, California on the western edge of Soda Lake, a dry lakebed in the east Mojave Desert. Spanning a number of historic periods from military operations in the 1850s to salt and soda extraction industries in the 1920s, the site is primarily associated with Curtis Howe Springer and his Zzyzx Mineral Springs resort. Constructed between 1944 and 1974 the district contains, among other earlier elements, the water features of Lake Tuendae and West Pond, distinctive athel/palm nurseries, and a number of handmade buildings of concrete blocks made on site.

The 1853 to 1974 period of significance reflects the span from the earliest military developments at “Soda Springs” of which little remains, to the year Curtis Howe Springer was removed from the site by the Bureau of Land Management (BLM). Most of the features associated with earlier periods of development have been obscured or lost, although much from the early twentieth century railroad and soda extraction developments remain. The Zzyzx Mineral Springs resort developments from the second half of the twentieth century make up the majority of the district. These are generally in good condition and retain integrity as a designed landscape. Supporting this integrity are the contributing landscape characteristics of natural systems and features, spatial organization, topography, vegetation, circulation, buildings and structures, cluster arrangement, views and vistas, and archeology. The characteristic of land use has changed significantly and does not contribute to the integrity of the district.

Cultural Landscapes Inventory Hierarchy Description

Zzyzx Mineral Springs exists solely as a landscape with no components. The extent of development is relatively compact with extant resources attributable to the period of significance of 1853-1974. The majority of these are attributable to one primary period of development, the Springer period of 1944 to 1974. Consequently, there are no component landscapes.

Location Map



Location Map (from current park General Management Plan)

Boundary Description

The boundary of the Zzyzx Mineral Springs Historic District roughly outlines the extent of the developments associated with the two soda works efforts and Curtis Howe Springer's use of the area. These developments comprise a compact area bordered by the northernmost palms likely planted by Springer, the eastern extents of the Pacific Coast Soda Company railroad extending into Soda Lake, the southernmost developments of Zzyzx, and the westernmost developments of Zzyzx roughly bordered by the Soda Mountains.

Regional Context

Cultural Context

Early Native American use of the Zzyzx area as a water source has left relatively little impact on the land, though a number of pre-contact archeological sites are found in the area. However, historic cultural contexts are generally associated with the early military, mining, and railroad influences in the area. It was these political, utilitarian, and extractive efforts that established the beginning of large-scale physical changes in the area, allowing for the contemporary configuration of Zzyzx Mineral Springs to be established. As Zzyzx began to wane in the late 1960s and early 1970s, recreational use of the Mojave desert began increasing with the development of off-road vehicle routes in the open desert. Today, this activity is limited to designated road corridors like the Mojave Road which passes through the district.

Physiographic Context

Zzyzx Mineral Springs lies on the western shore of the flat, eight-mile-wide Soda Lake, which resulted from the desiccation of Pleistocene Lake Mojave about 9,800 years before present (ybp). The site sits at an elevation of 930 feet above sea level at the eastern foot of the southern Soda Mountains. At this elevation, with the enormous flat extent to the east and the steep mountains rising to over 700 feet to the west, Zzyzx is found at the intersection of two physiographic and topographical extremes.



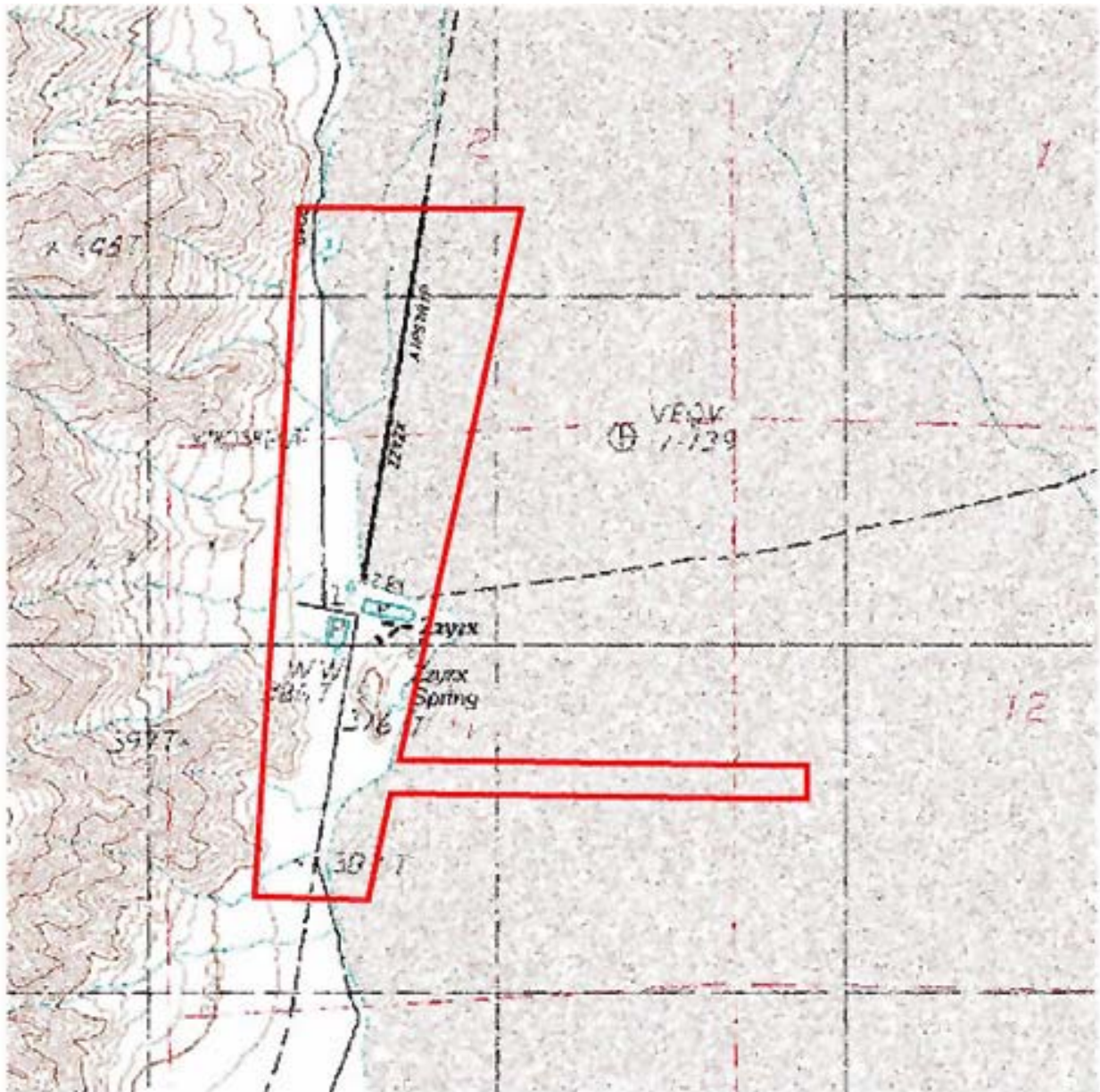
Physiographic Context: Zzyzx Mineral Springs at the base of the southern Soda Mountains, from Soda Lake looking west. (PGSO, CLI, MOJA-N-0014-2/3/4, 2002)

Political Context

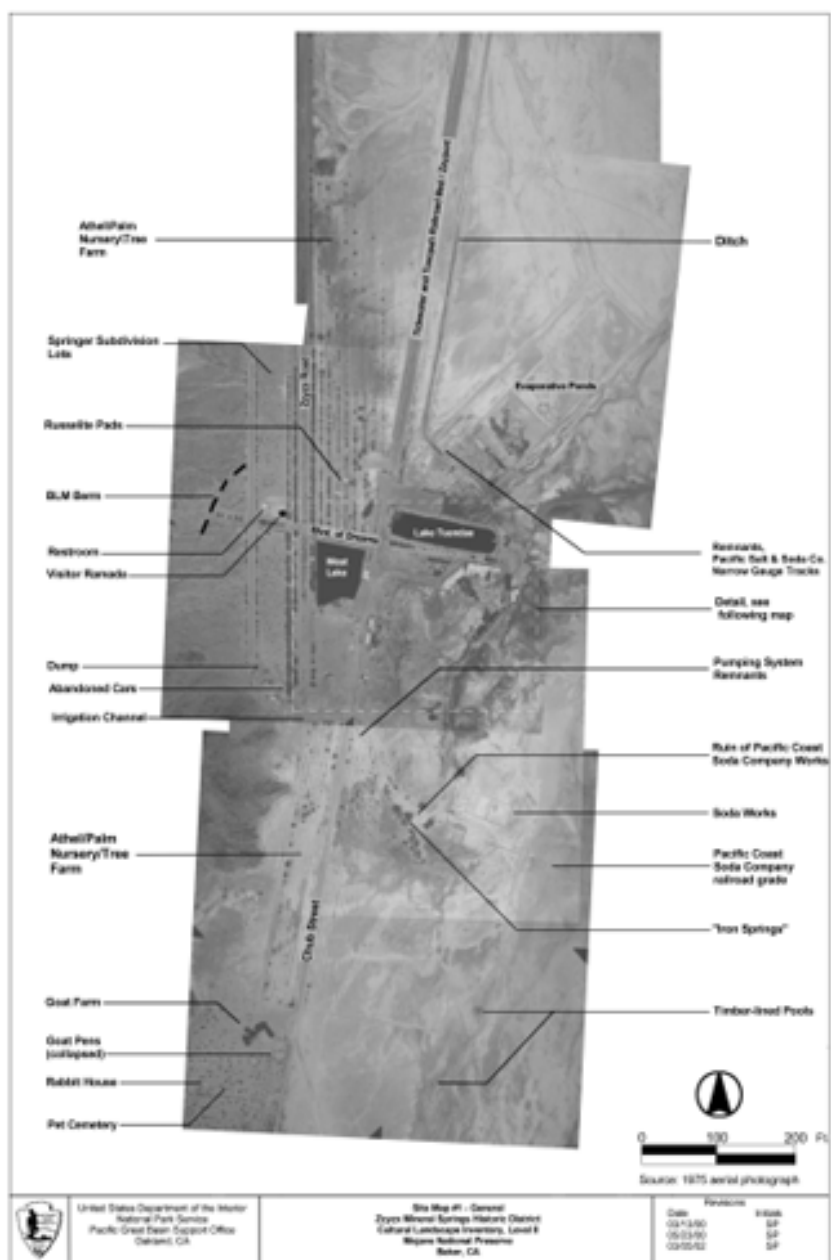
Zzyzx Mineral Springs is located in San Bernadino County in the northwestern corner of the 1,546,625.66-acre Mojave National Preserve. The preserve is owned and operated by the National Park Service (NPS) under the Department of the Interior.

Site Plan

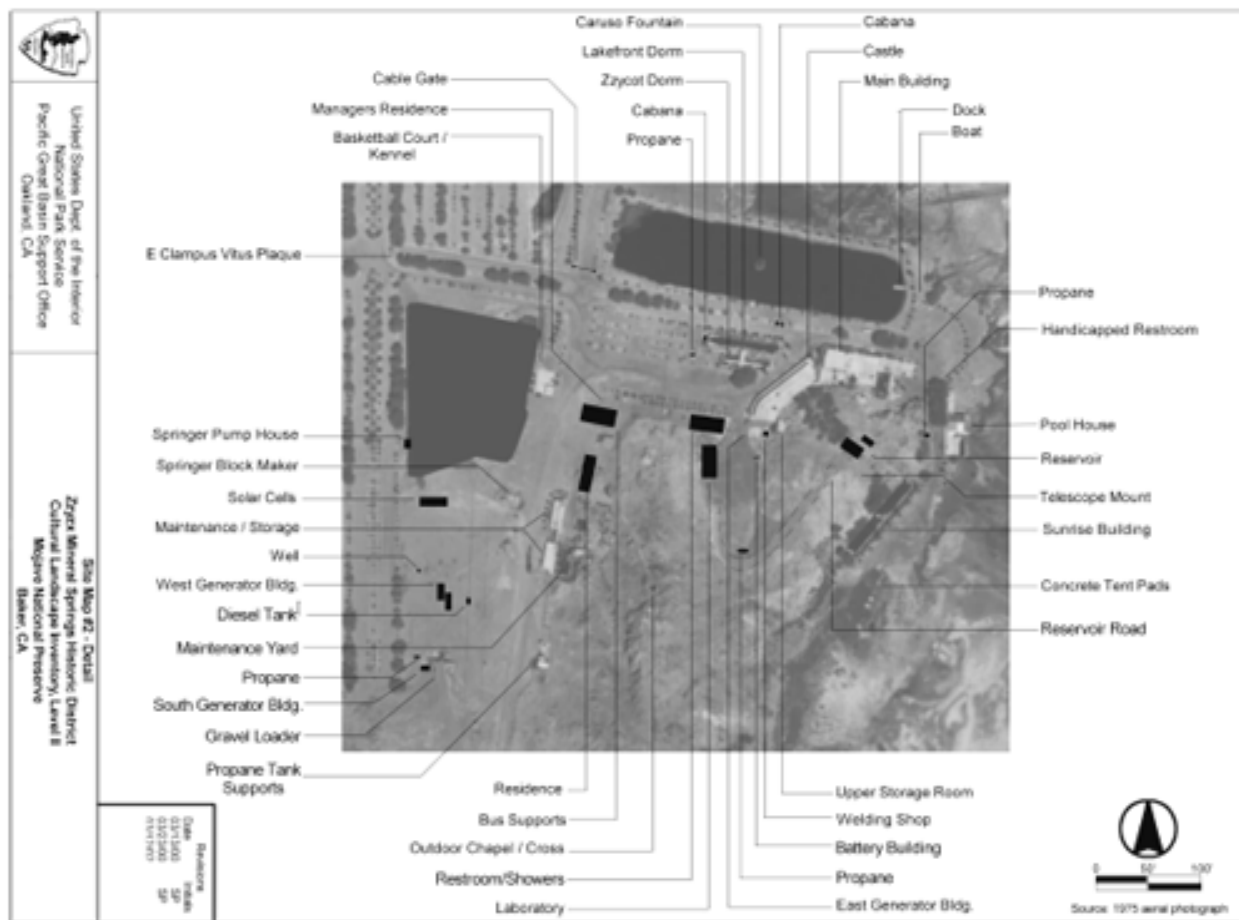
Zzyzx Mineral Springs Historic District Boundary Map



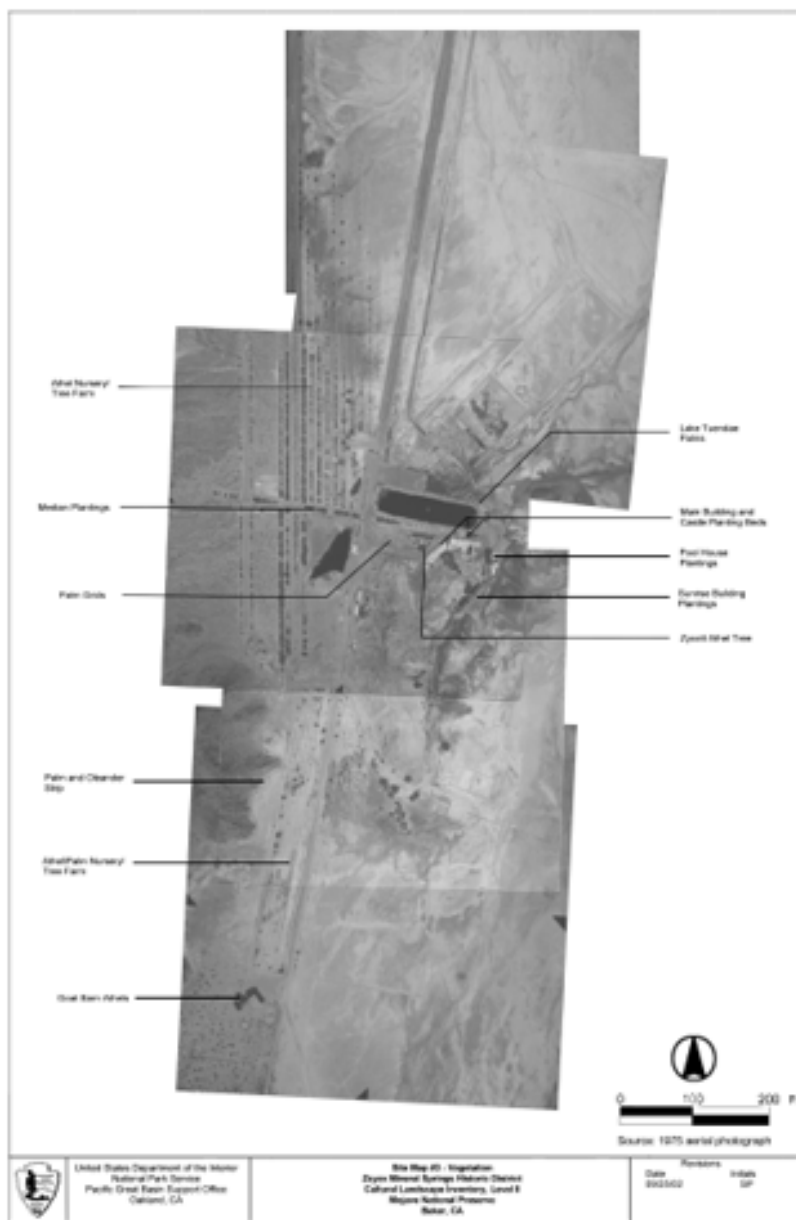
Site Map #1: Please see Supplemental Information for full size map.



Site Map #2: Please see Supplemental Information for full size map.



Site Map #3: Please see Supplemental Information for full size map.



Chronology

Year	Event	Description
1853 AD	Explored	Soda Springs is first described by a European.
1860 AD	Built	Hancock's Redoubt is built at Soda Springs.
1866 AD	Expanded	Soda Springs becomes a mail relay station.
1871 - 1872 AD	Built	A stage station is established at Soda Springs. The stone wall in the Main Building most likely dates from this period.
1906 AD	Built	The stretch of the Tonopah and Tidewater Railroad through Zzyzx Soda Springs is constructed.
1907 AD	Mined	The Pacific Coast Soda Company begins construction to the southeast of Limestone Hill.
1907 AD	Mined	The Pacific Salt and Soda Company begins construction to the north of Limestone Hill.
1914 AD	Built	The Russellite pads are constructed.
1917 AD	Abandoned	Probable year of the end of the closing of the Pacific Salt and Soda Company.
1944 AD	Inhabited	Curtis Howe Springer first arrives at Soda Springs.
1945 AD	Built	Springer begins construction of the Sunrise Building about this time.
1945 - 1955 AD	Built	Springer constructs the majority of structures found at Zzyzx Mineral Springs.
1974 AD	Abandoned	Springer is evicted by the BLM from Zzyzx Mineral Springs.
1976 - 2002 AD	Established	The Bureau of Land Management and the California Desert Studies Consortium sign a cooperative agreement establishing the Desert Studies Center.

1980 - 1985 AD	Neglected	The BLM ceases watering of the athel/palm nursery.
1981 AD	Built	The Restroom and Shower Building is constructed.
1984 AD	Built	The Reverse Osmosis Building is constructed.
1984 AD	Built	The Laboratory Building is constructed.
1984 AD	Built	The Battery Building is constructed.
1985 AD	Moved	The Residence trailer is moved to its current location.
1987 AD	Expanded	The kitchen addition to the Main Building is constructed.
1987 AD	Built	The rear kitchen patio is constructed.
1988 AD	Built	The Trash Shed is constructed.
1989 AD	Built	The Manager's Residence is constructed.
1989 AD	Built	The West Generator Building is installed.
1989 AD	Built	The side kitchen patio is constructed.
1995 AD	Built	The Welding Shop is constructed.
1996 AD	Land Transfer	Mojave National Preserve is created in part from BLM land.
2000 AD	Demolished	The first BLM/NPS Visitor Ramada is demolished.
2001 AD	Built	The NPS Visitor Ramada is constructed.
2002 AD	Excavated	Lake Tuendae is dredged.

Statement Of Significance

Statement of Significance

The Zzyzx Mineral Springs Historic District is a unique example of an isolated desert location whose precious natural resources were utilized for a series of military, industrial, and recreational purposes. Mineral springs located at the edge of a vast dry soda lake provided water for an early army outpost, evaporative extraction processes common in desert areas, and the development of a unique health resort. The district is locally significant for the period of 1853 to 1974 for its military, industrial, and entertainment/recreational contexts. The district is eligible for listing on the National Register of Historic Places under criteria A (association with historic events), criteria B (association with a historically significant person), and criterion C (characterized by distinct construction or design).

Under criterion A, Zzyzx Mineral Springs Historic District is significant as an important source of water and salts in the eastern Mojave Desert from the pre-contact period through the present day. The springs (originally called Soda Springs) provided much needed water in the desert for Paiute Native Americans in the pre and post-contact periods, the U.S. Army (before, during, and after the Civil War), travelers on the Mojave Road between southern California and Arizona Territory in the 1860s, a stagecoach/mail line during the 1870s, a railroad "station" and side track from the 1920s through the 1940s, a salt and soda extraction site in the early 1900s, and the resort development of Zzyzx Mineral Springs from 1953 through 1974. Despite the number of land uses, only the water source itself, the salt and soda extraction areas, and the Zzyzx Mineral Springs resort development retain enough historic material to establish integrity.

The water source consists of several mineral springs and seeps along the base of a north-south running ridge (Limestone Hill) a short distance east of the Soda Hills and at the west end of Soda Dry Lake. Although some of the seeps may have ceased to run in the last century, this primary resource continues to provide valuable water for the surrounding desert halophytic plant community, as well for utilitarian purposes associated with the Desert Studies Consortium (DSC) currently located there. Desert greenery continues to flourish around the seeps and spring pools, and the DSC continues to tap the well source in order to fill Lake Tuendae and water much of the planted vegetation dating from the Zzyzx Mineral Springs development.

Two business enterprises, the Pacific Salt and Soda Company and the Pacific Coast Soda Company, operated salt and soda extraction plants at the site from 1907 through 1914 on the eastern side of Limestone Hill. The remaining square-shaped salt evaporation ponds, rail grades, machinery, and ditches relate to the context of harvesting of mineral salts from dry lakes in the California and Nevada desert which has occurred from the 1870s to the present day. Salt harvesting in the Mojave desert began during the 1870s on dry lakes or playas whose surfaces were encrusted with the bright white salt deposits along the California-Nevada border. The process then spread into Death Valley where borax was gathered at the Harmony and Eagle Borax Works, to the Amargosa and Saline Valleys, to other dry lake beds in the California desert, and perhaps most importantly, to Trona, where it continues today.

The water sources in the Zzyzx Mineral Springs Historic District are significant within the context of dozens of named springs in the lands in Mojave National Preserve. Of these, the springs at Zzyzx were the most repeatedly settled, most intensively developed, and had the longest documented history in the written records.

Under criterion B, Zzyzx Mineral Springs Historic District is significant for its association with Curtis Howe Springer, who founded the Zzyzx Mineral Springs resort in 1944. During the next thirty years

Springer constructed a unique resort spa which served as the base for his career as a radio preacher of indeterminate Christian denomination; manufacturer, promoter and seller of questionable patent medicines/food supplements sold for their purported medicinal value; promoter of quasi-religious philosophies and health regimens; and builder/owner/manager of a resort built in part by homeless laborers from Los Angeles, and occupied by vacationing, elderly, and ill patrons. Viewed alternately as a con man or as a visionary philanthropist persecuted by insensitive and uncomprehending government agencies, Springer created a unique institution and development in Zzyzx Mineral Springs. He built a unique desert oasis environment through the construction of, among other features, dormitories, utility buildings, goat and rabbit sheds, mud baths, a pool complex, two lakes, athel and palm nurseries, and numerous landscaping features which collectively composed what was intended to be a self sustaining desert resort spa. The buildings were constructed of “Springer block,” a unique concrete form developed and manufactured onsite, and the surrounding land was landscaped with streets, curbs, planting beds, and decorative trees. Outlying areas were planted with nurseries of thousands of athel and palm trees, most of which are still extant, intended to provide an income source for the resort. These nurseries continue to compose a striking oasis image visible for miles across Soda Lake. Ultimately, however, Springer was evicted from the site in 1974 due to its illegal construction on federal land. He left a place that was neither a typical resort nor a typical religious retreat, but a unique mixture of the two.

Elements of the built environment within the site possess significance at the local level under criterion C, under architecture and landscape architecture areas of significance. The overall design and layout of Zzyzx Mineral Spring and Health Resort and the surrounding landscape are illustrative of an oasis in the Mojave Desert built for healthy recreation and spiritual enrichment. Zzyzx Mineral Spring and Health Resort was a microcosm in the desert that was developed and operated by Curtis Springer from 1944 to 1974. The improvements there illustrated Springer’s ability in the desert to be self reliant, to recycle and to take advantage of existing structures and features. All aspects of the resort’s development were overseen by Springer. The site was developed to include a myriad of uses related to the operation of the resort. The core of the resort served as guests’ accommodations and recreational uses. Other use areas of the resort developed by Springer included areas for food production, plant propagation, future housing, airport, and religious ceremony.

Today, Zzyzx Mineral Springs Historic District appears much as it did during the period of significance. Although some elements of earlier military, railroad, and soda extraction use activities have been lost, the overall design of the district as it relates to the Springer period in particular is intact. The springs and seeps along the east side of the ridge remain largely unchanged since prehistoric times. The remains of the salt ponds from the 1907-1911, as well as the abandoned railroad grade and ties of a small-scale railroad extending out onto the lakebed for salt harvesting, also remain and contribute to the cultural landscape. Together, the features and landscape characteristics of the Zzyzx Mineral Springs Historic District effectively convey the significance of the district and contribute to the integrity of the property.

Physical History

Prehistoric Period

The following history text was extracted from a draft history of Zzyzz written by Gordon Chappell in 2002.

Prehistoric period

In prehistoric times, while the water source at Soda Springs may have been intermittent, it probably served the Native Americans in the area as a water source principally in emergencies. While potable, the water was unpalatable (though the water may have been fresh at times) due to its content of chemical salts. But in a desert environment where it was an unfailing and reliable water source, it was significant and important even if the water was unpleasant to drink.

Reportedly, an unrecorded archeological site of an Indian settlement exists at Soda Springs, and at least one Indian burial has been found there, but neither was made a part of the archeological record and more archeological work will be necessary to ascertain whether there are any significant prehistoric sites at Soda Springs today. None are addressed in this form.

Soda Springs in the 1850s

In November 1853, 1st Lieutenant Robert S. Williamson of the Corps of Topographical Engineers penned what is the earliest description of Soda Springs yet found:

We had found at the base of the hills, on the edge of the salt lake, several fine springs, slightly brackish but not unpalatable. Around these was good grass. The camp was moved here and the animals were refreshed by once more having as much to eat as they wanted. Few later visitors would find the water there "not unpalatable."

On March 8 the following year, another topographical officer, 1st Lieutenant Amiel Weeks Whipple penned another description: "... at ten o'clock in the evening we reached the camp of Lieutenant [Joseph Christmas] Ives, where water and grass were abundant. The latter was salt, and the former was brackish; but nevertheless, they sufficed to relieve present necessities . . ."

That same day Lieutenant David Sloane Stanley arrived at "a place where water rose rapidly upon digging, but most disgustingly salt and brackish." An artist with the Whipple expedition described "... some hollows containing water as clear as crystal, and [we] stooped eagerly to relieve our painful thirst, but our lips had no sooner touched it that every one started back in disgust at the intolerably bitter taste. It was almost undrinkable for human creatures . . ."

However, in January 1859, Brevet Lieutenant Colonel William Hoffman while marching to the Colorado River with a detachment of 50 members of the 1st Dragoon Regiment found the water "... a little warm and slightly brackish, but when cold, pleasant to the taste . . ." Six months later, Captain Richard Brooke Garnett of the 6th Infantry wrote: "Soda Spring is one of the boldest, and clearest I ever saw--for several hundred yards round it is a considerably growth of rushes, that animals eat with avidity, but which is apt to scour them, no other grazing to be had . . ." Thus views varied on the palatability of the water, but most visitors did not like to drink it.

Soda Springs and the Paiute War, 1860-1868

As the result of the killing of three settlers in the East Mojave Desert, Brevet Major James Henry Carleton, a squadron commander of the 1st U.S. Dragoons stationed at Fort Tejon, conducted a campaign against the Paiute Indians along the Mojave Road in the spring and summer of 1860. While intermittent and interrupted by the onset of Civil War during the following year, the Indian trouble continued until 1868. As a base, Carleton's troops used a new military camp along the Mojave River a day's travel west of Soda Springs (and west of Mojave National Preserve) called Camp Cady. Operating out of Camp Cady, Carleton's troops would establish military field camps at Soda Springs, Marl Springs, Rock Springs, and Pah-Ute Springs [all within the boundaries of Mojave National Preserve].

In April 1860, Carleton sent 1st Lieutenant M.T. Carr east on a "scout" with a detachment of dragoons, and leaving Camp Cady on the afternoon of April 30, Carr's detachment reached Soda Springs at 11 a.m. on May 1. Guided by David McKenzie, Carr's detachment included a pack train as well as a wagon drawn by six mules. Pursuant to orders, Carr left four men and the wagon at Soda Springs, and marked out the location for them to start building a small circular redoubt (a small fortification on a hilltop). Then at 10 p.m. that night, he left with the rest of the command headed southeast for the Providence Mountains to search for hostile Indians. After seeing much evidence of Indian travel, the soldiers finally caught up with first one, then another, party of Indians, each of about five or six men, and in two skirmishes killed about five Indians and captured one old Indian woman. The command then returned across Soda Lake to Soda Springs, arriving about 11 a.m. on May 3. Carr found the redoubt "going up finely." He reported: "The earth is very good for such purposes, being very tenacious, and there is plenty of good sid for revetting. With plenty of tools and the necessary time, a very good and substantial redoubt could be built here."

After laying over a day at Soda Springs, Carr left on another patrol to the southeast, and although they found an abandoned, month-old Indian camp or "rancheria," they caught no Indians.

Returning to Soda Springs on May 6, Carr found the redoubt about two thirds finished. On May 7 he left with another patrol, returning late on May 8, upon which he found the redoubt finished except for the traverse in front of the entrance.

Carr left Soda Springs with his entire detachment around noon on May 9, arriving at Camp Cady at 11:30 a.m. on May 10. On May 28, Carleton sent Lt. Carr with 22 men and the scout, McKenzie, on another patrol, which arrived at Soda Springs about sunrise on May 29. Again he left his escort wagon at Soda Springs, this time with a Corporal Dalton in charge of a detachment of 8 men. He assigned them to finish the redoubt. Carr then took the patrol to Marl Springs and from there south into the Providence Mountains, finding no Indians this time.

Carr returned to Soda Springs at 4 p.m. on June 32nd. "Found 'Hancock's Redoubt' very nearly finished," he reported. Thus he named the little sod, willow and mud fortification for Captain Winfield Scott Hancock, the Depot Quartermaster at Los Angeles. [It should be noted that roughly three years later, as a major general of Union volunteers during the Civil War, Hancock played a key role in the Battle of Gettysburg in Pennsylvania.] Carr went on to note for June 4, 1860: "Lay over today to rest the horses and finish the redoubt. Had it finished so that a small party of men can hold it securely against any number of Indians that will ever be likely to be in that part of the country. Loop-holes are so arranged around the top that men inside of the redoubt can command all the ground around without exposing themselves to the fire of the Indians. Had the front traverse so arranged, also, that it will afford secure shelter to three or four horses."

Carr left Soda Springs with his patrol on June 5, arriving at Camp Cady the next day. Thus "Hancock's Redoubt" at Soda Springs was built between May 1 and June 5, 1860.

A description of the redoubt in February 1861, at the time not occupied, reported it constructed of mud and willow brush, and claimed a half dozen resolute men could hold it against all the Indians in the desert.

The Regulars were called east to fight in the Civil War, the First Dragoons being renamed First Cavalry on August 3, 1861. Volunteer troops enlisted in California and elsewhere throughout the West to take the place of the Regulars, and by May 1863, Soda Springs had been temporarily reoccupied by men of the 4th California Volunteer Infantry. However, the California men soon moved east, eventually as far as New Mexico, leaving Soda Springs unoccupied again.

In 1866, after the Civil War had ended, Soda Springs became a mail relay station on the route over the Mojave Road to Arizona Territory, and the Army reoccupied Soda Springs from August 21, 1867 to May 23, 1868. The small garrison varied from about five to ten men of Company K, 14th U.S. Infantry. A corporal generally commanded this small outpost, and a total of 18 different men served there at one time or another during this period. The post also suffered from desertion by some members of its contingent in 1867. Also that year, conflict with the Indians resumed with a vengeance, one victim of which was Army contract surgeon Merrill E. Shaw, hit in the neck by an arrow while en route by the mail buggy eastward across the Mojave Road. He died at Soda Springs on October 17, 1867, and was temporarily buried there.

The term "Hancock's Redoubt" seems to have been forgotten, and the military post at Soda Springs often was referred to instead as "Soda Lake." A November 1867 description noted that at Soda Lake "A small stone shanty furnishes quarters for the detachment of six men from Camp Cady." It is not clear whether this "shanty" was Hancock's redoubt, roofed over and otherwise somewhat modified, or a wholly new military structure.

In January 1868, the detachment at "Soda Lake" was reported to be "four men, with a relay of horses, to act as mail escort." Another description, on January 25, 1868, referred to "the miserable hut called 'Soda Lake Station' with its guard of soldiers."

On March 27, 1868, Captain Charles A. Whittier in the role of an inspecting officer inspected "Soda Lake" where he found a corporal and three privates from the company stationed at Camp Cady. They were "occupying one house made of stones and earth." He reported the existence also of a corral, that the appearance of the detachment was fair, and that they had no fresh meat, but "sufficient ammunition."

Special Orders No. 32 from the headquarters of the Sub-District of the Upper Colorado, issued at Fort Mojave, Arizona Territory on May 9, 1868, ordered the abandonment by the army of "Soda Lake," which took place on May 23.

Thus Soda Springs' role as a small, even tiny, military outpost in the small, even tiny, Paiute War of 1860-1868, was well documented. In one of the Zzyzx buildings near the main spring of Soda Springs is a remnant of stone wall which may date from the stone and mud hut which the soldiers used there. No trace of Hancock's Redoubt itself survives, and the fragment of stone wall does not possess sufficient integrity to represent the military camp of the 1860s, which, in effect, has left no resources with integrity on the site.



History #1: Soda Springs Station in 1874. (Courtesy of the Fort Verde State Park, Camp Verde, Arizona. As reprinted in Duffield-Stoll, 1994)

The Stage Station of the 1870s

During the 1870s, Soda Springs served as the "Soda Lake Station" on a stage/mail line from Los Angeles to Hardyville, Arizona Territory, and ultimately Prescott. An August 1871 description found that "Messrs Ward & Co." had the station "well-arranged." "The House is built at the end of a small rocky hill detached from the main line of hills . . . "

Close to the house a large spring bursts forth from among the rocks sending quite a respectable stream. The boys have built for the use of the public a nice bathing place and invited us to take a bath while they were preparing dinner.

Thus the stone wall now incorporated in a Zzyzx building almost certainly dates from the stage station, and may have survived from the earlier military stone building. The stage station appears to have been in use at least until 1882. But again, as with the military post, no surviving historic resources with integrity mark its existence--only a fragment of stone wall now incorporated into a Zzyzx building.

1870s to 1914

Mining around Soda Springs

There were various mining activities around Soda Springs which have left little or no record. At one time remains of an arrastra (circular grinding mill with drag stones) existed there, but now they are gone. During the 1890s, Soda Springs was included in the Solo Mining District. Miner Frank Riggs and his wife, Sarah, apparently lived in a house at Soda Springs. In November 1889 he had filed a claim on the "Hetzel Mill Site," being "five acres with springs and pools of water . . ." including the whole station site. But there are no remains of the Riggs occupation or enterprises. This is not surprising in that many claims are filed and not worked, although the location may be occupied.

Russelite Religious Retreat

In 1914, some years after the railroad was built through the Soda Springs region, a German religious group, the Russelites, headed by Pastor Charles T. Russell, settled at Soda Springs and built five frame houses there and attempted to mine gold in the nearby hills. The effort was unsuccessful, the Russelites abandoned Soda Springs, and the cabins were salvaged for their lumber, which was reused in some of the first structures in the nearby town of Baker, to the northeast. With the exception of a number of concrete pads, nothing remains of their activity at Soda Springs.

Tonopah & Tidewater Railroad - 1906-1943

The next development of note at Soda Springs was construction of the Tonopah & Tidewater Railroad. Francis Marion Smith, the "Borax King," expected to run out of borate ore at the mines a dozen miles north of Daggett, California, about 1907, and considering the other borate deposits he owned, decided next to open a mine on the Lila C. claim east of Death Valley, one of the properties he had acquired from the bankruptcy of William Tell Coleman in the late 1880s--the Lila C. was in fact named for Coleman's daughter, Lila Coleman.

The mines near Daggett were connected by an 11 mile narrow gauge railroad with a main line railroad, the Atchison, Topeka & Santa Fe, for convenience in shipping borate concentrates to refineries in Wilmington, California, and at Bayonne, New Jersey. Unfortunately, the Lila C. was over a hundred miles from any main line railroad.

Smith met with Senator W.A. Clark whose San Pedro, Los Angeles & Salt Lake Railroad was under construction between Los Angeles and Salt Lake City and would form a new main line railroad and the one closest to the Lila C. He thought he had a verbal agreement with Clark that he, Smith, would build a connecting railroad from Las Vegas, Nevada, on the S.P., L.A. & S.L. north to the Lila C., and incidentally on to a connection with Tonopah and Goldfield, booming new Nevada gold mining camps.

But when Senator Clark got to thinking about that, especially the Tonopah and Goldfield traffic potential, he decided HE wanted to build the connecting line between Las Vegas and Tonopah, although he did not tell Smith that he had changed his mind.

Smith began construction of railroad grade north from Las Vegas, completing about 25 miles when it was time to start laying track, and his company filed a routine request for the S.P., L.A. & S.L. to put in a connecting switch at Las Vegas. To Smith's surprise, the request was refused. Smith and his minions tried to track down Senator Clark, who made himself unavailable, until it became evident that Smith had been double-crossed. Soon Senator Clark had incorporated the Las Vegas & Tonopah Railroad to build the line Smith had started. He did eventually buy the right-of-way and finished grade Smith had

constructed, thus reimbursing Smith for part of his investment. Clark apparently thought Smith would be forced to let Clark's railroad carry the ore from the Lila C. But he didn't know Smith well enough.

In towering rage, Smith vowed to still build his own railroad to the Lila C., even if from a much less satisfactory junction with a main line railroad and even if Clark had beat him to a connection to Tonopah. Thus Smith incorporated the Tonopah & Tidewater Railroad and in 1905 began construction northward from Ludlow on the Atchison, Topeka & Santa Fe Railway, crossing Clark's S.P., L.S. & S.L. at Crucero, California, not far south of Soda Lake.

In the spring of 1906, the Tonopah & Tidewater construction north of Crucero came to the west shore of Soda Lake, where it passed between the ridge which featured Soda Springs and the Soda Mountains immediately to the west. At Soda Springs the railroad put in two side tracks, one on each side of the main, with switches at the north end. Later, the railroad reportedly had a single side track with a capacity of eight cars. "Soda Lake" as it was called was a "station" on the railroad, "station" being an engineering term and not necessarily implying the presence of a depot. However, Soda Lake did briefly have a depot of some sort from November 30, 1907, to August 31, 1908, with R.H. Blee as the station agent. That time corresponded with the period that two companies were building salt processing plants at Soda Springs.

North of Soda Springs, the railroad cut directly across the floor of Soda Lake to Baker. While Soda Lake never filled with enough water even in wet years to cause the railroad much trouble (one locomotive and train wrecked due to a washed out trestle between Soda Springs and Baker), Silver Lake north of Baker would in a wet year soon to come fill with water. The flood destroyed the original station town of Silver Lake and forced the Tonopah & Tidewater to build a bypass around the east end of Silver Lake.

Having built track past Soda Springs in 1905, the Tonopah & Tidewater continued construction northward through increasingly difficult terrain, especially the Amargosa Canyon, reaching Death Valley Junction and, via a 6.98-mile spur track, the Lila C. Mine, in the summer of 1907. From Death Valley Junction, main line construction continued north to Beatty, where the T. & T. connected with the Bullfrog-Goldfield Railroad through to Goldfield and Tonopah, thus somewhat late, more-or-less duplicating Senator Clark's Las Vegas & Tonopah and denying Clark any revenue at all from the Lila C. or other borax mines Smith owned in the vicinity and would mine continuously for the next 20 years. Clark had outsmarted himself; his L.V. & T. withered when the depression in the fall of 1907 attacked the mining industry and traffic to and from the mining boom towns of Tonopah and Goldfield and Rhyolite waned and died. Of course the L.V. & T. was also denied any of the reliable and lucrative borate traffic Smith's T. & T. carried. Then when the United States entered the World War in 1917, the U.S. Government took over the nation's railroads and put them under the U.S. Railroad Administration, whose administrators decided in 1918 that the L.V. & T. was superfluous and ordered it dismantled for scrap iron to feed the war machine.

Smith's Tonopah & Tidewater, again in the ownership of the Pacific Coast Borax Company when the U.S.R.A. was dismantled after the war, would continue to operate for nearly another quarter of a century. However, a shift of borate mining in June 1927 from the mines east of Death Valley to new mines at Boron, near Kramer, virtually right on the Atchison, Topeka & Santa Fe main line, caused the Tonopah & Tidewater, too, to wither.

Meanwhile, Soda Springs had served for a few years as a source of mineral salts from the surface of Soda Lake, shipped out over the T. & T. from Soda Springs siding to Ludlow on the Santa Fe, probably in the form of burlap-sacked concentrates. So Soda Springs had played a small role in providing freight traffic for the Tonopah & Tidewater Railroad to carry.

But the shift of borate mining from the Greenwater Range in 1927 to Boron ultimately proved fatal to the Tonopah & Tidewater, although it struggled along as a lonely desert "short line" until June 14, 1940, when it operated its last train. Officially abandoned in 1942, the rails of the Tonopah & Tidewater Railroad were salvaged in 1943 to feed the wartime scrap metal drives of World War II just as those of the Las Vegas & Tonopah had fed the scrap drives of World War I. Many or all of the railroad ties were salvaged and used in corrals by local ranchers. These are still very much apparent in the area, particularly at the Kessler Springs, OX, and Valley View ranches.

Abandoned railroad grades, even minus the rails, are historic earthen structures which in numerous instances have been listed in the National Register of Historic Places if they have integrity and significance. The grades of the Tonopah & Tidewater Railroad have been determined by the State Historic Preservation Office to have significance where they have integrity. However, in the vicinity of Soda Springs they lack integrity due to the later development of the Zzyzx resort, which began two years after the dismantling of the tracks themselves. Development of the resort during the late 1940s, 1950s and 1960s, resulted in completely obliterating all traces of the railroad and its siding (side track) at Soda Springs itself and immediately north of Soda Springs the grade was widened into an aircraft runway, known as Zzyport.

South of Soda Springs the railroad grade retains many of its crossties which closer to Zzyzx were salvaged for campfire fuel and building material, and beyond the airport to the north of Soda Springs the grade across Soda Lake to Baker may have integrity, but within the boundary of the Soda Springs (Zzyzx) Historic District it does not have requisite integrity to qualify as a structure contributing to the historic district. [Those segments of the T. & T. north of Zzyzx and south of Baker, and south of Zzyzx to Crucero and beyond, need to be studied to ascertain (1) whether they are within the boundary of Mojave National Preserve, and (2) whether they have integrity as historic railroad structures. If the answers to both questions are yes, they need to be nominated to the National Register of Historic Places.]

Mining the Surface of Soda Lake at Soda Springs - ca. 1907-1914

The earliest historic resources at Soda Springs which possess integrity, other than some of the springs themselves, are the remains of two sets of salt evaporation ponds, consisting of earthen berms enclosing square or rectangular areas in which brine could be concentrated by evaporation.

The Pacific Coast Soda Company apparently began construction in May 1907 of a solar evaporation plant to treat brine immediately southeast of Soda Springs ridge, east of the Tonopah & Tidewater Railroad. The works started up near the end of May, 1908, and the American Mining Review of Los Angeles published a description of the plant on August 8, 1908:

"The Pacific Coast Soda Company has nearly completed the enlargement of its plant at Soda Lake station, on the Tonopah & Tidewater Railroad, 33 miles north of Ludlow, in San Bernardino county, California. This plant is only for the separation and purification of the saline crusts that cover the sink of the Mohave river. This sink, one of the "dry lakes" of the desert, from two to five miles wide and 18 miles long. Much of its surface is covered with crusts of saline matter that look like snow to the traveler. The top crust is white and is largely salt (sodium chloride) below which is a gray deposit that is salt and sodium sulphate mixed, and below is a damp silt-like material that is mainly sulphate of soda. A narrow-gauge track a mile and a half long extends out on the lake, and a small train is used to carry the crusts to the works, where they enter a revolving tube mill and are rapidly crushed in water kept at a temperature of about 100 degrees Fahr., until a saturated brine is formed. Centrifugal pumps lift this

brine to v-shaped wooden vats, or spitkatzen, where the sand is removed by settling, the brine overflowing through a series of vats until free from sediment. It is pumped from the last settling tank into huge rectangular tanks, with sloping bottoms and moveable covers. These are the chilling tanks, and are fitted with brine pipes connecting with an ammonia ice-machine. The cold brine from the ice plant circulating through these pipes soon chills the brine in the tank down to nearly the freezing point, when the sulphate of soda is no longer held in solution, but settles on the bottom of the tank like so much snow.

When nearly all the sulphate has been precipitated, the liquor is drawn off and the sulphate is allowed to drain for some time in the cold tank. When well drained the crystals are raked out onto a conveyor belt that carries them to the dryer. This is a revolving tube, over 40 feet long, where the crystals are dried by a blast of heated air, until the water of crystallization is removed and the sulphate is dry as flour.

The liquor from the chilling tanks is run into large solar vats or "salt floors" where the salt (chloride of sodium), crystallizes out in a few days. When the salt crop is complete the mother liquor is drawn from the salt floors into another series of solar vats where it is allowed to evaporate to dryness under the desert sun. This gives three products for the plant--sulphate of soda from the chilling tanks, salt from the salt floors, and impure sodium carbonate carrying some sulphate, and some salt, from the last solar vats.

The works were started up the last of May and proved so successful that the plant was at once ordered enlarged to a daily capacity of 25 tons of sulphate. The plant is equipped with the narrow-gauge road mentioned; a 60-horsepower and a 25-horsepower engine; a 40-ton ammonia ice-plant, and several acres of vats and floors. The sulphate of soda and the salt produced are both practically chemically pure analysing over 99 per cent pure. The sulphate is produced at once and the salt is gathered in a few days, instead of months as by the ordinary process. Some of the sulphate is sold for glass making and other purposes, but the main use of the plant is to furnish sulphate for the large plant building at Santa Ana, California, where the sulphate will be converted into carbonate, bicarbonate and caustic soda.

Both plants are the result of the work of Prof. G.E. Bailey the chemist of the company, who has devoted several years to a study of the saline deposits of the state and their utilization and who now sees his ideas carried into practical operation.

The plant at Soda Lake cost over \$25,000, and the plant at Santa Ana will cost about \$75,000 when completed this fall."

The description of the salt plant matches the complex of evaporation ponds or "salt floors" to the southeast of Zzyzx, where a number of concrete blocks with protruding bolts south of the Zzyzx ridge mark the sites of various machinery. Also, from this machinery an abandoned railroad grade heads eastward out into the lake; near Zzyzx all the ties have disappeared. However, if one follows the grade out onto the floor of the lake, after a quarter mile or so the ties are mostly still in place out to the end of the line. One tie with spikes in both ends marked this railroad as 30 inch gauge. Whether steam or gasoline locomotives hauled the salt trains is unknown, although probably the latter. This elaborate plant may have operated for only a year.

The evaporation ponds or "salt floors," the machinery foundations which mark where various machines rested, and the grade of the salt railway all retain sufficient integrity to qualify for National Register listing as remnants of a locally significant industrial operation to mine the surface salts from Soda Lake.

There is a second set of solar salt evaporation ponds to the northeast of Zzyzx coupled with an abandoned railroad grade along the edge of some ponds. Though not continuing out onto the lake bed, one tie with spikes near each end, suggests this railway had a track gauge of 36 inches. The evaporation

ponds at this location seem to have been somewhat better built, or perhaps longer maintained, than those southeast of Zzyzx.

The answer is that the ponds to the northeast of Zzyzx were those of the Pacific Salt and Soda Company, a different firm than the Pacific Coast Soda Company which operated the ponds southeast of Soda Springs. The Pacific Salt and Soda Company also had begun construction of evaporation ponds at Soda Springs in 1907, and the key is an article in the San Bernardino Sun of August 11, 1907 about the work of the Pacific Salt and Soda Company which stated:

“The company doing this work must not be confounded with the Pacific Coast Soda Co. The Pacific Salt and Soda Company has no stock for sale. It is a closed corporation that is working the deposit.”

This would explain why the ponds to the southeast were associated with a 30-inch gauge railway, a common enough mining tramway, while those to the northeast were associated with a 36 inch gauge railway, an even more common narrow gauge; they were the work of two different companies.

BOTH sets of evaporation ponds and remains of sluice gates, concrete foundations for machinery, and other structures are considered to have integrity enough for them to be contributing structures to the historic district.

The last reported activity of the Pacific Salt & Soda Company was in 1912, when "new blood" reportedly had joined the company. It may have continued operating until World War I in 1914 or up to 1917.



History #2: Pacific Salt and Soda Company, circa 1908. (Frank Green, Courtesy of the Hugh Tolford Collection. As reprinted in Duffield-Stoll, 1994)

Zzyzx Mineral Springs Resort, 1944-1974

On September 13, 1944 (on one occasion he wrote it was August 13), an individual arrived at Soda Springs who would change it forever. Curtis Howe Springer was a tall, handsome man with an excess of charisma. Born in Wheeling, West Virginia, on December 2, 1896, he was the only child of Mildred Howe Springer and Walter A. Springer, a life insurance salesman. He left school at the age of 15, after completing the 9th grade. He supposedly at one time helped to drum up crowds for William Jennings Bryan's tirades against alcoholism, and sold music books in the aisles during Billy Sunday's evangelical crusades, and if true, the style and activities of these two public figures in American history may have greatly impressed and influenced young Springer. Springer inherited his father's talents as a salesman, but rather than putting them to what might be termed a legitimate use, he used those talents during a long career as, essentially, a quasi-religious, quasi-medical confidence man.

During his long career, Springer had established a pattern of four principal activities:(1) He became a "radio preacher" of indeterminate but presumably Christian religion, and incidentally used his radio programs over the years to promote his other activities. (2) He became a manufacturer of a long list of what might be called "patent medicines" but which were closer to being food supplements, for which he made extravagant medical claims of their supposed healing powers. (3) He gave lectures and classes all of which had admission fees in which he pushed a quasi-religious, psychological philosophy of life, and also used them to promote his patent medicine products. (4) He established over the years a succession of health resorts, of which the one at Soda Springs was the longest lasting and most successful, at which he promoted both his quasi-religious psychological philosophies and his patent medicines.

In support of all of these intermixed activities, he claimed a number of degrees. He claimed to be "Doctor" Springer on several grounds, and claimed medical expertise to back up his lectures and classes and patent medicines and health cures.

When pressed, "Dr." Springer claimed that his M.D. degree came from a New Jersey chiropractor named Frederic W. Collins who ran a diploma mill called the First National University of Naturopathy. Springer had attended no classes but answered some questions from Collins and paid a fee of \$200 to \$300 (he couldn't remember exactly how much) to be granted an M.D. degree. Collins' "university" was not a recognized medical college, had no scientific standing, and had no legal authority to grant a Doctor of Medicine degree. On a different occasion he claimed his M.D. degree came from the American College of Doctors and Surgeons in Washington, D.C., but no such institution existed. Of course, Springer was not a trained and licensed M.D. in any sense of the word, but he fraudulently claimed to be throughout his career, and used that claimed expertise to push his patent medicines, his lectures and classes, his radio program, and his health resorts. Springer also claimed the degree of "D.O" which he translated as Doctor of Osteopathy which he had acquired at Meyersdale, Pennsylvania, where he once lived, but there was no college of osteopathy there. He also claimed a Ph.D. degree from a New Jersey school of osteopathy, but in fact schools of osteopathy did not award Ph.D. degrees. Springer also claimed to have attended the Westlake College in West Virginia, but there was no such institution. When advertising his degrees, he would sometimes add that they were "honorarily conferred."

Springer also claimed to have been trained as a Methodist minister, which may or may not have been true. He claimed to have attended the "West Virginia Wesleyan College" and the Moody Bible Institute and received credentials as a Methodist preacher.

In 1929, Springer was in Chicago where as the "Dean of Greer College" he advertised free lectures: "Money For You. Develop Your Powers. Be Healthy. Happy. Successful. A series of Free Lectures is offered to the public under auspices of the Extension Department of Greer College. Thousands have paid to hear these lectures, but you can hear them free, through the courtesy of the Davenport Psychology Class. President Hoover said the complete abolition of poverty is now a possibility for us . . . Analyze

Yourself. Know Your Hidden Powers . . .”

As it turned out, Greer College was a school for automobile mechanics which had gone bankrupt, leaving a long list of creditors and but-partially trained students holding the bag. While the lectures were "free," Springer apparently took up a collection at them, and raked in money that way. He also taught classes in psychology for a price of \$25 per student.

Not long thereafter, Springer was giving a course of lectures at the Y.W.C.A. in Scranton, Pennsylvania which he claimed were presented through the "Extension Department of the National Academy." National Academy of what? Where? In fact there was no such institution, but the name sounded good.

During the 1930s, Springer incorporated a firm called "Basic Foods" under the umbrella of which Springer manufactured products such as "Re-Hib" and "Antediluvian Tea," and claimed that in the Depression year of 1933 he had made \$76,000 from selling such products. He claimed in the next 30 years to have sold four million packages of the "tea." In 1935 the American Medical Association had a chemical analysis run of "Re-Hib" and found it was 72.3% sodium bicarbonate (ordinary baking soda), with smaller amounts of magnesium carbonate (magnesia), calcium carbonate (chalk powder), lactose (milk sugar), sodium carbonate, bismuth subcarbonate, and a trace of oil of peppermint which gave "ReHib" a pleasant odor and taste. It offered no medicinal benefit other than perhaps that of a mild laxative.

In December 1930, Springer published a magazine called Symposium Creative Psychologic, a name which was, in essence, meaningless. In October 1935, he started another magazine, Dr. Springer's Health & Happiness Magazine. He was also, that year, in trouble with the Federal Trade Commission due to his advertising claims. He sold "Springer's Health Bread" in Johnstown, Pennsylvania, organized "Springer's Temple of Health" in Wilkes-Barre, Pennsylvania, and set up a health resort at Mount Davis near Salisbury, Pennsylvania. He also established the "Dr. Curtis Howe Springer Foundation."

Because he claimed medical expertise as an M.D., the American Medical Association got onto Springer as early as 1929, and in their journal for September 14, 1935, published a devastating critique of Springer's claims. Apparently he was arrested in Cumberland, Pennsylvania, about 1933, for practicing medicine without a license, but allowed to run free without bail, disappeared before he could be tried.

As a radio preacher, he supposedly broadcast at Philadelphia, Pittsburgh, and Chicago, in succession. Then early in the 1940s he moved to Los Angeles where he resumed his radio broadcasting and lectures, first at the Angelus Hotel and later at the Alexandria Hotel at Fifth and Spring Streets. He continued manufacturing and promoting his patent medicine/health food preparations, claiming to have invented 27 such nostrums. He also began searching for a location at which to establish another health resort, which would have been his eighth or ninth. According to one report he tried to settle at Saratoga Springs in Death Valley National Monument but alert National Park Service rangers chased him out. Then in a second hand bookstore in Los Angeles he bought for 25 cents a book on California mineral springs that talked about Fort Soda Springs. It did not make it clear where it was, but after some searching, Springer located the site and, with his third wife, arrived there on September 13, 1944 [in some accounts he claimed August 13] to find it abandoned. Subsequently he filed nine placer and one lode mineral claims on 12,800 acres at and around Soda Springs. He later claimed these gave him the legal basis for occupying the government land now managed under the recently created Bureau of Land Management of the U.S. Department of the Interior which had succeeded the old General Land Office.

First setting up a tent camp, and later buying five surplus Los Angeles Transit buses to serve as small buildings, Springer began construction of his final health resort. As World War II came to a conclusion,

he was able to purchase a variety of surplus materials including a Navy surplus 30 kilowatt Detroit diesel electric generator from government sales. He obtained the donation of parts taken from Navy ships being scrapped. Most of the doors, windows and plumbing fixtures were either war surplus or from an old hotel in Los Angeles. He brought indigent and homeless people from "skid row" and a Los Angeles rescue mission to Soda Springs, and over a period of time 5,000 alcoholics were turned over to him from Lincoln Heights Jail by a cooperative Judge Clifton. Springer clothed and fed them and paid them ten dollars weekly, and from one point of view exploited them for labor in building his resort. Others thought he was a great philanthropist, providing a great public service by giving the above people a chance to rehabilitate themselves in a healthy, dry, desert environment, and in building a hot springs health resort where the poor, elderly and infirm could recuperate and regain their health.

Springer decided to name his health resort "Zzyzx," a name he conceived to be the last word in the English language. As he once put it, he "wanted to have the last word." So what had been until then "Soda Springs" became the "Zzyzx Mineral Springs."

In 41 recorded oral history interviews, mostly over the phone, Dennis Casebier attempted to pin a retired Curtis Howe Spring down as to when he built what buildings at Soda Springs, but for the most part Springer did not answer those questions. It became evident that Springer simply did not remember the dates. However the bulk of the construction apparently took place between 1950 and 1955.

One of the earliest concrete structures at Zzyzx was the "rabbitory," or rabbit hutch where Springer raised rabbits for about two years, located at the southwestern corner of the complex. Pretty soon it was difficult to stay ahead of the increase for the rabbits bred like, well, rabbits. They had two or three thousand rabbits at one time. The facility cost about \$10,000. Springer's crew skinned the rabbits, selling the pelts to Sears, Roebuck, and they ate a lot of rabbit meat at Zzyzx and sold what they could elsewhere. They even made rabbit sausage.

He also built a concrete block facility with a wooden roof in which they raised as many as 94 goats. After about eight years, San Bernardino County health inspectors told him that unless he pasteurized the goats' milk, he would have to get rid of them. He argued that goats were immune to tuberculosis and undulant fevers, based on something he had read somewhere, and that the heat of pasteurization destroyed the vitamins in the milk, but the authorities would not relent and he had to get rid of his goats.

Initially, Springer's relations with the Bureau of Land Management were fairly positive, and at one time the bureau offered him 40 acres at Soda Springs, but Springer turned it down because he wanted much more. Also, at one point Congressman Jerry Pettis had been persuaded to draft and introduce a bill giving Springer the land he wanted, a fairly common practice at the time, but before he could complete it Pettis flew his small plane into a peak in the San Gorgonio Mountains, and that was the end of that.

By 1952, as Zzyzx grew and grew, however, the Bureau of Land Management had begun to be concerned by Springer's trespass on Federal land, and started looking into the situation.

In a letter to Congressman Jerry Pettis dated August 1, 1973, the year before he was evicted from Zzyzx, Springer explained some of his background and attitudes: ". . . my precious mother failed to receive proper medical attention during the prenatal periods of my brother and sister, resulting in her inability to give them normal birth and with the consequence that both at different periods were destroyed at birth by incompetent medical doctors. At another time I can still hear my dear mother scream as those primitive doctors placed leaches on her precious body, then bleeding her, because they lacked a knowledge of how

to control and normalize her blood pressure by proper foods and proper habits of living. With such a background in my youth I grew up with doubt in my mind as touching the value of medicine [the medical profession] and all that it represented.”

Springer's attitude towards the medical profession hardened when he read books "on the early butchery of surgery" and of past practices of prescribing stewed cockroaches and stewed monkey's feet for certain diseases.

“Almost yearly we learn of one after another of so-called miracle drugs that are eventually discarded as dangerous and improper for human use. I learned of the millions of placeboes or sugar and paste tablets that were prescribed knowingly to fool the public and without any therapeutic value.”

Thus Springer developed an early contempt for the medical profession. Springer found the old-fashioned general practitioner disappearing in favor of the specialists or the "production line doctor" for whom he had nothing but contempt. On the other hand, he praised preventive medicine, and wrote:

“Because of my unfortunate early medical disenchantment, I gravitated to certain schools and groups who had great interest in naturpathy [sic]. I learned that Hippocrates had not been a medical doctor as medicine so often claims, but was a naturopath. Back in my early days there were many struggling schools espousing Medicine, Naturopathy, later Osteopathy, and still later, Chiropractic [sic]. I found medicine [the medical profession as represented by the A.M.A.] militant toward any individual or group, no matter how meritorious their teachings might be, if they could not take credit for it and could not control its future.”

Springer offered Congressman Pettis this account as background to his conflict with the American Medical Association, the Pure Food and Drug Administration, and other authorities, and it does explain the origin of many of his attitudes.

To some of his admirers, Springer represented the sort of self-sufficient individual who could take a piece of abandoned desert land and make something of it, creatively turn it into a thriving desert resort establishment, combined with evangelical enterprise and patent medicine manufactory. They viewed the government officials who were after Springer for various infractions of law or regulations as unsympathetic, hide-bound bureaucrats who simply didn't understand the man.

The unraveling of Springer's hold on Zzyzx often is tied to an article by Charles Hillinger which appeared in the Los Angeles Times in July 14, 1967. Rather than that being a cause, however, Hillinger's article was more a reflection of the final frustration and determination of the Bureau of Land Management to be rid of Dr. Springer. While there had been many centers of irritation over the years, the last straw from the BLM point of view may have been in 1961 when Springer filed applications for building permits with San Bernardino County for one hundred dwellings at Zzyzx, and laid out and marked a large number of lots, all on land to which Springer had no legal claim. BLM advised the county that Springer was a trespasser on Federal land. In 1965, BLM minerals examiner M.E. Ryman submitted an official report several years in the making that all mining claims at Zzyzx which Springer held--a swath three miles wide by eight miles long--were invalid. There was, in effect, no mineral there.

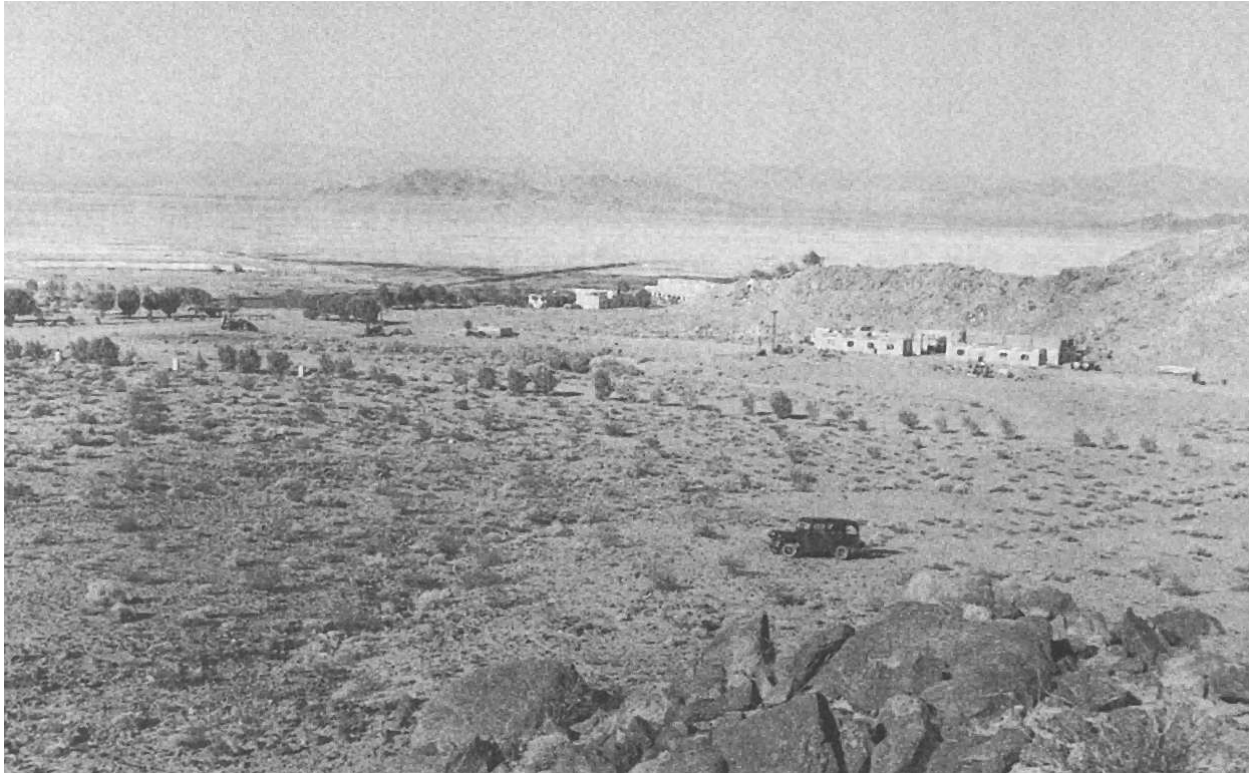
In 1965 the State Health Department had Springer arrested on 65 charges of false advertising and misrepresentation of his health products. In an agreement worked out with his attorney, Springer pleaded guilty on September 17, 1969, to eight false advertising charges. In 1971 he served 60 days in prison on these charges. The various other proceedings against Springer wound their way through the courts and on April 11, 1974, Federal marshals arrived at Zzyzx to evict him. Springer's thirty-year occupation of

Soda Springs had come to an end. He moved to Las Vegas where in August, 1985 he passed away.

Subsequently the Bureau of Land Management leased Zzyzx to the California State University consortium in 1976, which operated it as a Desert Studies Center, which it continues to be today.



History #3: Tent cabins and Sunrise Building construction in the 1940s. (No source. As reprinted in Duffield-Stoll, 1994)



History #4: Zzyzx Mineral Springs in 1955 from the base of the Soda Mountains. (Courtesy of the Harold and Lucile Weight Collection. As reprinted in Duffield-Stoll, 1994)



History #5: The Castle Building in the 1950s. (Courtesy of the Duffield-Stoll Collection. As reprinted in Duffield-Stoll, 1994)

Analysis And Evaluation

Summary

The Zzyzx Mineral Springs Historic District retains integrity in the following landscape characteristics: archeology, spatial organization, cluster arrangement, circulation, buildings and structures, small scale features, topography, vegetation, natural systems and features, views and vistas, and constructed water features. The sole landscape characteristic that does not retain integrity is land use. Collectively, these characteristics establish the integrity of the district according to the seven qualities outlined by the National Register of Historic Places: location, setting, design, materials, workmanship, feeling and association.

The location of all remaining features associated with significant activities at Zzyzx Mineral Springs has remained constant, as has the setting of the area in the west Mojave at the foot of the Soda Mountains on the western shore of the dry Soda Lake. Although some elements of earlier military, railroad, and soda extraction use activities have been lost, the overall design of the district as it relates to the Springer period in particular is intact. A similar conclusion is drawn for the materials and workmanship which have lost some earlier elements but retain the majority of those associated with Zzyzx Mineral Springs. Lastly, the feelings and associations established by the remains of both soda companies, the Springer-constructed buildings, the athel/palm nurseries, and Lake Tuendae among other features provide the intangible links that evoke the presence of the place during the period of significance and the direct physical link to the events that occurred there.

The designed landscape of the Zzyzx Mineral Springs Historic District contributes to the historic significance of the district under Criteria A, B, and C for the period 1853-1974.

Landscape Characteristics And Features

Natural Systems And Features

Natural Systems and Features are the natural aspects that have influenced the development of a landscape. They may include geomorphology, geology, hydrology, ecology, climate, and native vegetation.

Zzyzx Mineral Springs lies at an elevation of 930 feet on the western shore of the dry Soda Lake. This western shore is dotted with several ground water seeps vegetated by a halophytic (saline-adapted) plant community with distinctive zonation responding to soil saturation. The few springs and artificial ponds are characterized by aquatic and emergent plants typical of alkaline/saline waters. Most of the buildings of the Zzyzx/Soda Springs resort lie around a shoreline outcropping of metamorphic limestone of Permian age, which are again exposed immediately to the northwest, on the piedmont and crest of the Soda Mountains. These outcrops are vegetated with a Saltbush scrub commonly dominated by desert holly (*Atriplex hymenelytra*). The Soda Mountains, rising 1,250 feet to the west of Soda Springs, consist of Mesozoic granitic and metavolcanic rocks eroding to short low-angle alluvial fans and debris flows (see photo, Physiographic Context). The fans grade from halophytic and Saltbush Scrub dominated vegetation at their furthest margins, to Creosote Bush Scrub, which continues up the slopes of the mountains to their crest (see photo, Natural Systems and Features #1). At the southern end of the Soda Mountains, eolian (wind-blown) sand deposits cover some hillslope and fan surfaces, and are characterized by a Desert Psammophytic (sandy soil) Scrub plant community. (Fulton, personal communication with the author, 2002)

“Wide day-night temperature fluctuations, seasonally strong winds and clear skies characterize the Mojave Desert. Meteorological records kept since 1908 at Soda Springs...have recorded temperature extremes from a low of 8F (-13 C) in January to a high of 120F (49C) in August... Days with temperatures in excess of 100F (38C) typically begin in May and can last into October. During July and August, minimum temperatures above 90F (32C) can be expected on several nights. Relative humidity is generally low – below 40% most of the year, above 50% on most winter nights, and near 90% after summer thunderstorms. On a typical summer afternoon the relative humidity is approximately 10% and on a winter afternoon approximately 30%.”

The rainfall is seasonal, with most rain falling between late October and April. Since 1980, the mean annual precipitation has been 3.5 inches. Most rain falls during the summer thunderstorm season which runs from July through September. (Desert Studies Center, brochure, nd.)

Soda Springs and Iron Springs

The main spring at Soda Springs prior to the establishment of Zzyzx Mineral Springs may have once been a hole in the quartz foundation at the northeast end of Limestone Hill which once produced copious amounts of water. A concrete and stone pool had been constructed nearby in the 1870s. Neither of these features appears to exist today. However, a smaller spring system on the east side of the base of Limestone Hill, as well as a number of smaller springs or seeps, continue to flow today. Two primary spring pools remain at this location. The easternmost was augmented by the BLM in the early 1980s. The other appears to have been excavated as well, as evidenced by possible nearby spoils piles. This pool is also the second Mojave chub habitat (Lake Tuendae being the first) and is cleared of vegetation on a yearly basis.

With the possible exception of the loss of some spring outlets at the base of Limestone Hill, the natural systems and features associated with Zzyzx Mineral Springs Historic District have remained essentially unchanged. The Soda Mountains and adjacent Soda Lake in particular remain as essential features of the area. Consequently, natural systems and features retain integrity as a contributing landscape characteristic of the historic district.



*Natural Systems and Features #1: Halophytic and Saltbush Scrub vegetation along the shoreline of Soda Lake.
(PGSO, CLI, MOJA-N-0015-13, 2002)*

Buildings And Structures

For purposes of the CLI, buildings are defined as elements primarily built for sheltering any form of human activity, whereas structures are functional elements constructed for purposes other than sheltering human activity. The CLI references the List of Classified Structures (LCS) and records buildings and structures as features of the landscape. As features, buildings and structures contribute to the spatial organization, circulation, and integrity of the landscape. The LCS Program is the National Park Service's inventory for buildings and structures on or eligible for the National Register. It provides details that are not typically found in the CLI and should be referenced for more definitive structure information. The following text expanded from Jackson's draft National Register form from

The majority of the Springer period buildings are located at the base of Limestone Hill in an area south of the Boulevard of Dreams, east of Chub Street, and west of Soda Lake. These buildings are constructed of concrete blocks that were made on site, with the exception of the remains of earlier rock structures that were incorporated into the Main Building. Springer used donated and purchased war-surplus materials wherever possible in his structures, which themselves were built in large part by men recruited from Skid Row in Los Angeles or released to Springer out of jails, and brought to the desert for rehabilitation. Springer's first structures were tent cabins erected on the eastern side of the hill at the edge of Soda Lake. These were occupied until the first building, "Sunrise," was completed in the late 1940s. The concrete slabs for the tent cabins remain, although they are largely overgrown. Apart from the Sunrise Building, which is known to be the first building constructed, and the "rock room," which predates Zzyzx Mineral Springs, the order of construction of Springer's structures is not known, although photographs show that he had finished almost all of them by 1955. Many of the structures are technically incomplete—a deliberate act on Springer's part to avoid paying taxes.

CONTRIBUTING

Sunrise Building

The first permanent structure (ca. 1945) built by Springer, the Sunrise Building is a stucco over concrete block single story building, 136 feet by 14 feet, 9 inches. It has a flat roof with a low parapet and swamp cooler. Sunrise contains twelve units or sleeping rooms, each with a small toilet room. On the east (front) elevation, each unit has a window and a door. On the rear, or west elevation, each unit has two windows one from the sleeping room and one from the toilet room. The north and south units have an additional window and door on the exposed elevation, however these doors have been filled in with cinder blocks. On the east elevation, each pair of units shared a concrete stoop and walk. The windows were wood, likely double hung, with screens as evidenced by one remaining in pieces on the floor in the southernmost unit. With the exception of the screened window in the south unit, all windows have been sealed with plywood. It is unknown whether the original windows remain under the plywood covers. Some of the original, two panel wood doors painted white remain. The building is painted white with green trim. On the east and southern elevations, palm trees, oleanders, and tamarisk originally planted during the Springer period have become overgrown and in some cases are causing damage to the roof line of the building (see photo, Buildings and Structures #1).

The Sunrise Building is in poor condition as a result of lack of use and deferred maintenance. In places the exterior stucco is delaminating, there are some large cracks in the structure, and the concrete is spalling near the ground. Two of the wooden doors are coming apart and are in very poor condition. Further, the walks are badly cracked and the tar roof coating is deteriorating and no longer covers the entire surface. A large athel tree on the building's south end is causing structural damage. The structure nevertheless retains integrity.

Pool and Pool House

Located about seventy-five feet northeast of the Sunrise Building, the pool is believed to be one of the early structures (circa 1945-1950) constructed by Springer. The roughly 110 foot by 35-foot structure is situated on a north-south axis with the Pool House at the north end and the pool at the south. The pool actually consists of a large cross-shaped basin and five mineral soaking tubs within a concrete-walled enclosure. The wall height varies from about 4 feet on the west side (reconstructed in 1990) to approximately 20 feet on the east, and has a 2 by 6-inch wooden cap in places. Within the large pool, a braced concrete block wall cuts off the western arm of the cross, creating a smaller area that is actively used at present, well maintained, and painted blue. The soaking tubs are sized to fit one person, are on an east-west axis, have individual spigots, and are sloped down to the east. The concrete wall enclosure has on its south and east sides 4 over 4 windows with operable 2 over 2 center sections. These were built two pairs on a side apparently to protect the bathers from the wind and allow for spectacular views of Soda Lake. None of the glass remains in these windows. At the northwest, southwest, and northeast corners of the pool there are doors that lead to the low-walled enclosure.

The Pool House is a stucco over concrete block, L-shaped structure roughly 52.5 feet long by 35 feet at its widest, and 18 feet at its narrowest. A trash shed immediately adjoins the Pool House at the north end. Wood beams support a roof of corrugated metal over indoor baths. At the south end is an open-air concrete patio area with a concrete slab roof. It is 35 feet by 15 feet, and open on the east (one bay) and south (three bays) sides, and forms the base of the "L". The indoor area has a number of mineral baths. On the east side, 6 small metal 2 over 1 windows face Soda Lake, on the north side is one 2 over 1 window, and on the west side are six 2 over 1 windows. Both the Pool House and pool enclosure walls are painted beige with brown trim (see photo, Buildings and Structures #2).

Both the Pool House and pool itself retain integrity although they are in poor condition. There have been only minor structural changes, such as closing off the arm of the large pool to make a smaller pool, and repairs to the west wall of the pool enclosure. The walls on the east side of the pool enclosure are leaning out, indicating an unstable soil condition and inadequate foundation. A row of tamarisk trees planted along the west side of the Pool House have grown very large and are causing serious structural damage to the west wall. There are areas of spalling concrete and deteriorating rebar in the Pool House; and apart from the small maintained pool, the pool and baths do not hold water.

Main Building

This large structure is located at the southeastern end of the Boulevard of Dreams, facing north. Constructed in stages between 1945 and 1955, the Main Building is irregularly shaped with a flat north (front) façade and an extremely irregular south (rear) façade constructed to nestle against the north slope of Limestone Hill. It is roughly 101 feet long and about 50 feet at its widest. The building has three distinct parts: a rock-faced section on the west with four rooms and an arcing rear wall, a stucco over concrete block mid-section with one large room and bell tower above, and an eastern end consisting of the original rock room set back behind a concrete breezeway abutting a kitchen addition (1987). As noted earlier, remains of earlier rock structures were incorporated into this building. The Main Building is, for the most part, stucco over concrete blocks with a flat roof, overhang, parapet, metal windows, wood doors, and a concrete bell tower. The north face has three concrete porticos with wood shingle gable roofs (replaced in 1996) that extend about five feet from the face of the building and a low planting bed running the length of the structure, punctuated by the three porticos. At about roughly the center of the rear of the building there is a door that leads to an exterior concrete ramp that rises to the southwest and connects with the second floor walkway of the Castle building next door. The Main Building is painted beige with brown trim (see photo, Buildings and Structures #3).

The west-end of the building is the section with the rock facade. Metal 1 over 4 light casement windows

flank the door made of wide vertical wood planks. The windows sit in concrete frames with concrete sills and lintels. There is a one-foot concrete overhang just above the windows and a concrete parapet above. The west-end of the parapet is marked with a concrete corner post. The door opens on to the original office, now divided between the office of the Desert Studies Center and its store. At the rear of the office a door leads to the classroom, formerly a chapel. The walls of the classroom are thick and there are areas in the north and east walls that are stone with soft mortar that has been plastered over and buttressed with concrete. Both the east and west ends of the classroom have windows, of which those found to the east are covered as they now face into the dining room of the Main Building. The floor of the classroom is slightly higher than that of the rest of the building with a "stage" area at the west-end. It is very possible that Springer built this room on the remains of the nineteenth century building which likely dates back to the Army era in the 1860s. The stone facade on the west-end of the main building was apparently constructed from the loose stones already on the site from the collapsed walls of an earlier building. There are two doors on the southern wall of the classroom of which the western one leads to storage areas (vertebrate collection and Directors storage), and the eastern one leads to the library (formerly Springer's office) and the slide and map collection room (formerly the recording studio). A fourth classroom door on the eastern wall leads into the dining room, the center portion of the Main Building. Windows on the rear of this portion are aluminum and set high in the walls near the ceiling line.

The center section of the Main Building is roughly "L"-shaped and has a stucco façade and a portico identical to that on the west-end of the building. The portico is flanked by 1 over 4 light metal casement windows. There are two large casement windows with fixed sash centers in this section of the building. Above the portico is a bell tower with four concrete columns, a thin concrete slab roof, and a bell hung on wooden 6-inch square timbers. The rear of this section has two doors in the southwestern corner of which one leads to the library and one leads to the ramp mentioned above. A door roughly in the center of the rear wall leads into a small caterer storage area, and a fourth rear door leads to a patio area behind the kitchen. It should be noted that an opening in the rear wall has been glazed, but appears to have formerly led to an exterior door to the caterer storage area. A door on the east wall just north of the fireplace leads out into a breezeway, another just south of the fireplace leads to the "rock room," and a third door to the south leads into the kitchen addition. Inside this center section is the foyer display area and dining room, a large open space with a stone fireplace at the east end and display areas at the west end. Concrete ceiling beams run east-west.

The eastern section of the Main Building incorporates the circa 1860s-80s rock room, the oldest structure at Zzyzx Mineral Springs and also includes the contemporary kitchen addition. The northern façade of the eastern section is stucco with a concrete portico with a wood shingled gable identical to the other two on the Main Building. On either side of the entry are 1 over 4 light metal casement windows. A breezeway behind the facade has a concrete floor and leads from the dining room, past the rock room, and to a large, concrete patio with chairs and tables, constructed in 1989. The north, east, and southern facades of the kitchen addition are also stucco. To the rear of the kitchen is a second patio area with lights and a barbecue set in concrete constructed in 1987.

The rock room itself is roughly 20 by 17 feet. As noted above, this structure may date from the 1860s when a small military garrison was located at the north side of the hill near the spring, or from the 1880s when a stage station existed at Soda Springs. The stones are rough field stone with a soft, adobe-type mortar of unknown materials. Much of the mortar is missing on the exterior east side near the base of the wall due to splash-up from the adjacent concrete patio. Near the top of the rock walls there is cement mortar, likely dating from the time Springer stabilized the structure. Springer apparently used the rock room as part of his dining room, buttressing it with concrete and adding a roof and metal windows. The rock room now has a contemporary door in the center of its north facade, with railroad ties above and on

either side of the door that give the impression of heavy timber framed trim, although they are not structural. Inside, the walls are plastered and a concrete floor has been added. A 6 by 6-inch interior wood frame, bolted through the roof, was added recently to stabilize the building, which is now used for storage. Some of the interior plaster is delaminating. Outside, there is a low concrete shelf at the base of the walls on the north side, now used to store firewood. On the east side of the structure, Springer added a pair of 1 over 3 light metal casement windows in the center of the wall with square concrete pilasters on either side and concrete above and below. There is a concrete overhang and a parapet above. The rock room is set back approximately 8.5 feet, covered by the breezeway, from the north façade of the building.

The Main Building is in excellent condition. The changes since the Springer period are cosmetic apart from the new kitchen addition in 1987 that replaced a collapsed structure.

Castle

The Castle is a two-story, stucco over concrete block structure built sometime before 1955. It sits on a southwest-to-northeast axis, although its southwest end bends to the south, following the curve of Limestone Hill behind. The structure is approximately 144 feet long, 46 feet wide at its south end, and 33 feet wide at its north end. There is a veranda along the front of this building with a balcony above. Each unit has a patio area, separated by low concrete walls. The roof is flat with an overhang of about 12 inches. There are eleven units on the ground floor and five on the second floor. The doors are metal as are the window frames, which are generally of two types, regular casement windows and casement windows with a fixed sash in the middle. At the south end of the building there is a steep concrete ramp that leads to the rear of the structure. The building appears not be finished; a door in the south wall leads to nothing and the end of the southern walls are rough with exposed rebar. Whether this was a part of Springer's ploy to avoid taxes, or left that way in case Springer needed to enlarge the building, is not known, perhaps both. The ramp leads to a wood walkway installed in 1985 that runs along the back of the building and is similar to the original one. There are concrete and stone-lined gutters at the base of the hill, that were installed behind the Castle by an inmate work crew in 1990 to channel water away from the building. The Castle is painted beige with brown trim and is in good condition (see photo, Buildings and Structures #4).

Upper Storage Room

Directly east of the top of the Castle ramp is a small, 15 by 20-foot stucco over concrete block, trapezoidal-shaped structure, known as the Upper Storage Room. It has a flat roof, a metal casement window, and a metal door. The building is painted beige and is in good condition.

Lakefront Dormitory (Cottages)

The Lakefront Dormitory consists of four, stucco on concrete block cottages connected to one another by private patios, and sharing the same roof. Each patio has a low wall to mark the entry and one surplus metal Liberty Ship door. The building has a flat roof and there is a concrete overhang approximately 12 inches below the top of the walls. On the north and south sides, each unit has a metal 1 over 3 casement window with a fixed 1 over 3 sash in the center. There is a modern, gable-roofed box, hiding utilities over an employee apartment on the roof at the western end. The employee unit is larger than the others and has two casement windows on the north side, one on the west, one on the south and a smaller casement also on the south. All units originally had bathrooms, although now only the employee apartment has a functioning bathroom as well as an efficiency kitchen. A sidewalk runs the length of the building on the north side with connections to each patio. There is a row of palm trees between the sidewalk and Boulevard of Dreams. On the south side of the structure is a small courtyard with palms that is shared with the Zycott Cottages. The two structures are connected by a central covered walkway. The westernmost overhang on the building is sagging and is currently supported with pieces of lumber.

The Lakefront Dormitory is painted beige with brown trim and is in fair condition (see photo, Buildings and Structures #5).

Zycott Dormitory (Cottages)

These cottages are similar to the Lakefront Cottages, also consisting of four stucco on concrete block units sharing a single flat roof with no overhang. Each room has a half 1 over 2 light casement window and a 1 over 2 light casement with fixed center section window on the south side. On the north side are 1 over 3 light casement windows with fixed middle sashes. The easternmost unit has a window on the east side. A concrete sidewalk constructed in 1981 runs the length of the building in the courtyard to the north, with a connection to each unit's private patio via metal Liberty Ship doors. The patios have an entry to the north marked by a low concrete wall. There is a swamp cooler on the roof with ducts that are painted white. The Zycott Dormitory is beige with brown trim and is in good condition (see photo, Buildings and Structures #6).

Reservoir

The reservoir, located on the northern end of Limestone Hill directly behind the Main Building, is a 15 by 24-foot concrete block wall approximately four feet tall with a stucco coat. It no longer functions as a water source, but contains three plastic water tanks installed in 2000 and is painted beige. These tanks feed an adjoining beige with brown trim Reverse Osmosis Building constructed in 1984 (originally as an observatory). Although the reservoir is a contributing feature, the adjoining Reverse Osmosis Building is not. Both structures are in good condition.

Kennel and Basketball Court

A 26 by 35-foot concrete slab with a basketball backboard stands on the east side of West Pond. The backboard was installed in 1989. At the northeast corner of the slab is a concrete structure that once was likely a reservoir, but was converted into a dog kennel by Springer who owned miniature collies. The Kennel is 5 feet tall and 11 by 16 feet wide. There are four small, arched holes with pipe outlets below that were cut into the north side and a larger irregular hole on the west side. On the roof are five pipe inlets leading to the four small and one large interior chambers. These structures are generally no longer used and are in fair condition.

Maintenance/Storage Buildings

This complex lies at the west foot of Limestone Hill to the east of Chub Street, out of sight of the Main Building complex. There are two storage rooms connected in the middle by a concrete gateway flanked by two palm trees. Similar to most other structures at Zzyzx Mineral Springs, the two rooms are concrete block with a beige stucco coating. The northern room is stuccoed front and back, the southern structure only on the front, or west facade. Each structure has four bays on the west façade defined by five pilasters; the north room has two bays on the north façade with a single casement window and the south room has three bays, each with casement windows on the south façade. Each bay has a metal 1 over 3 light casement with middle fixed sash. In front of the second bay from the central gateway is a concrete block depression approximately 4 feet square and 2 feet deep, formerly used for utilities. The southern room has a walkway with 2 foot high walls leading to Chub Street. Behind (to the east of) the southern storage room there is a concrete slab that extends past the gateway to the edge of the northern room. An unstuccoed concrete parapet wall above the rear wall of the southern storage structure rises to the same height as unfinished concrete block walls with exposed rebar that enclose the south and east sides of the slab. Large steel beams cross above the slab from east to west. There is a small concrete slab with a plywood roof and adjoining beige-painted one story free standing wall at the northeast corner of the larger slab. The area behind the maintenance structure is used as a storage yard. There are two unpainted concrete block walls at the north end of the yard, one of which has a one over three casement window. The area to the rear is used for materials storage. The structures are unfinished in accordance

with Springer policy. The Maintenance/Storage Buildings are in fair condition (see photo, Buildings and Structures #7).

Loading Dock and Springer Block Maker

Just north of the gravel separator is a loading dock and concrete mixer from Springer's time. Some of Springer's original forms for concrete blocks are sitting on the loading dock. The dock is heavily cracked with the northeast corner collapsing. It is in poor condition.

Gravel Loader (Separator)

Across Chub Street from the maintenance area is a gravel separator constructed by Springer to supply construction material. A railroad map ca. 1908 showed this area as the "Gravel Pit" and the area behind what is now the maintenance complex as the "Quarry", establishing those features as predating Springer's development. A railroad tie retaining wall holds back a mound of gravel with the separator itself, a concrete and metal structure, built in front of it. This feature retains integrity, however it is in poor condition as many of the railroad ties are beginning to rot and shift.

Springer Pump House

A concrete block pump house is built into the bank on the south side of West Pond. The structure no longer contains equipment and is in fair condition.

Goat Farm (Milking Building)

The Goat Farm is located approximately 600 feet south of the Boulevard of Dreams, to the west of Chub Street. The Goat Farm is an exposed concrete block structure 90 feet long and 14 feet wide, with an 18 by 11-foot addition on its west side. The north face of the building is stuccoed, painted beige and has a metal, World War II military surplus door. On the east side of the barn there is a modern door (1995) and a small courtyard with concrete block walls about four feet tall and a slab floor. Patches in the wall of the east façade indicate that there were originally fourteen small windows. Three of these windows on the south end of the east façade were enlarged to 24 by 36-inch two over two light windows with metal frames, and that another other four were filled in. There is a continuous concrete lintel above the doors and windows. The south facade is stuccoed with no windows. The west façade has a one-room addition containing a well with a surplus Liberty ship metal door and pivoting metal window. Immediately to the north of this addition is a contemporary metal door and seven small, boarded, frameless windows. To the south of the addition, two original small windows were replaced with larger ones as was done on the east side. The rolled asphalt roof, painted beige, sits on wood rafters with a brown painted fascia and hardware cloth fills the space between the rafters to provide ventilation. All windows were boarded over in 1982. The roof was reconstructed in 1990. The Goat Farm is in fair condition (see photo, Buildings and Structures #8).

Rabbit House (Rabbitry)

One of the most unique buildings at Springer's resort was the Rabbit House. This roughly T-shaped subterranean building is a poured concrete and concrete block structure built underground to protect the rabbits from the desert heat. Two raised light wells are located on top of the hill providing light to the rabbit hutches below. These wells are poured concrete, roughly 8 feet square and 4 feet 4 inches high. The roofs are 4-inch thick concrete slabs with a 3-inch overhang. A 60 by 32-inch nine-light metal frame window was located on each side, the glass now missing. The rabbitry was entered from the south side by descending down the side of the hill. The main portion of the structure was the underground rabbit room, 50 by 12 feet, sitting roughly on an east-west axis. To its south were two rooms and a feed bin, forming the "T", 40 by 16 feet. The northernmost room was unfinished with no roof, and rebar protruding out of unfinished concrete block walls. This portion of the structure has a metal casement, nine-light window, with a fixed center. There is a slab floor with a hole in the middle. Next to this

room, in the center of the "T", is a room that leads into the rabbit room. There is a partial ceiling of railroad ties and a concrete floor that is sloped down from the rabbit room. Adjacent to this room, the southern end of the "T", there are three concrete feed bins, and a metal water tank which likely was originally located above the railroad tie platform. The tank is now lying in one of the bins. The rabbit room has concrete walls and ceiling, has a raised concrete center walkway with 32 compartments, two rows of eight stacked two high on each side. Each compartment is approximately 80 inches wide (centerline to centerline), 34 inches high and has a wood framework for the rabbit cages. There is some cracking at the connection of the ceiling slab and the light well structure walls. Some original Zzyzx Mineral Springs signs are now stored in the rabbit room along with the painted doors of a Zzyzx Mineral Springs bus. The Rabbit House is in fair condition (see photo, Buildings and Structures #9).

Dock

A small concrete slab on concrete post dock, approximately 4 by 12 feet, extends into Lake Tuendae from the east end and appears to date from the Springer period. The dock is in good condition.

NON-CONTRIBUTING

South of the cottages, within the notch between the limestone ridges, are four modern buildings that were constructed by the Desert Studies Consortium and/or the Bureau of Land Management: the Restroom and Shower Building, the Lab, the Generator Building, and the Battery Building. To the west of these buildings, on the other side of the ridge, are the Manager's house and a trailer. On top of the northeast limestone ridge, next to the reservoir, is a modern structure to house a telescope. All of these buildings and features, while recent, are similar in scale to Springer's buildings and are painted the same beige and brown colors. They do not contribute to the historic district.

Restroom and Shower Building

This frame structure with a concrete floor was constructed in 1981 on the north side of Castle Way to provide services to the growing number of visitors. It contains shower stalls, sinks, and toilets.

Visitor Ramada

The original visitor ramada was constructed by the BLM in 1987 and removed in 1999. The current NPS visitor ramada, restroom, and parking lot configuration located northwest of the Zzyzx Road and Boulevard of Dreams intersection was installed in 2001.

Ramadas

Two small ramadas were constructed in the Boulevard of Dreams median in 1995.

Managers Residence

The Managers Residence trailer was installed in 1989 on the north side of Castle Way, with the carport and deck installed in 1990 and 1991 respectively.

Reverse Osmosis Building

The slab for this building was poured in 1982 and the structure was built in 1984. Originally constructed at the top of the northern end of Limestone Hill as an observatory, it was soon converted to house the reverse osmosis process that filters water for the Desert Studies Center.

West Generator Building

This two-unit cargo container generator structure was constructed by the BLM in the maintenance area in 1989.

South Generator Building

This contemporary one-story, one room structure was constructed in the maintenance area at an unknown date, most likely in the 1980s.

Residence

This trailer was relocated to this site north of the maintenance area from an unknown location in 1981. The shade roof was added in 1985.

Laboratory Building

The Laboratory Building is located in the notch on the north side of Limestone Hill. It is constructed of two adjoining trailers installed in 1984. The shade roof was constructed in 1986 and the handicap ramp was installed the following year. In 1989 the hazardous waste ramp and north patio were constructed.

Welding Shop

Constructed in the notch in Limestone Hill in 1995, some amount of material was removed the previous year in preparation.

Battery Building

This alternate energy source building was constructed in the notch in Limestone Hill in 1984 and enlarged in 1988.

East Generator Building

This building was constructed in 1979 in the notch in Limestone Hill, and a back patio was constructed in 1995.

Handicapped Restroom

This contemporary restroom immediately north of the Pool House was constructed at an unknown date.

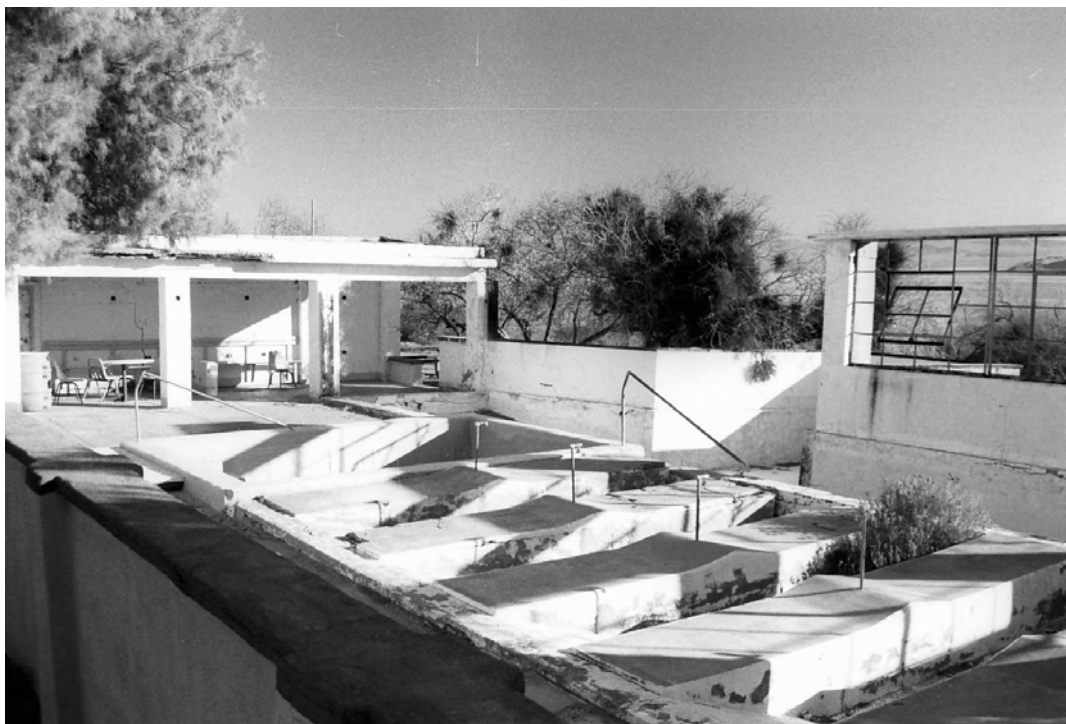
Trash Shed

This frame trash shed immediately abuts the north end of the Pool House. It was built in 1988.

Although the Buildings and Structures at Zzyzx/Soda Springs have been heavily impacted by additions and numerous intrusions, as a group they retain integrity as a contributing element of the historic district.



Buildings and Structures #1: East façade of the Sunrise Building with boarded windows and overgrown vegetation. (PGSO, CLI, MOJA-N-0015-18, 2002)



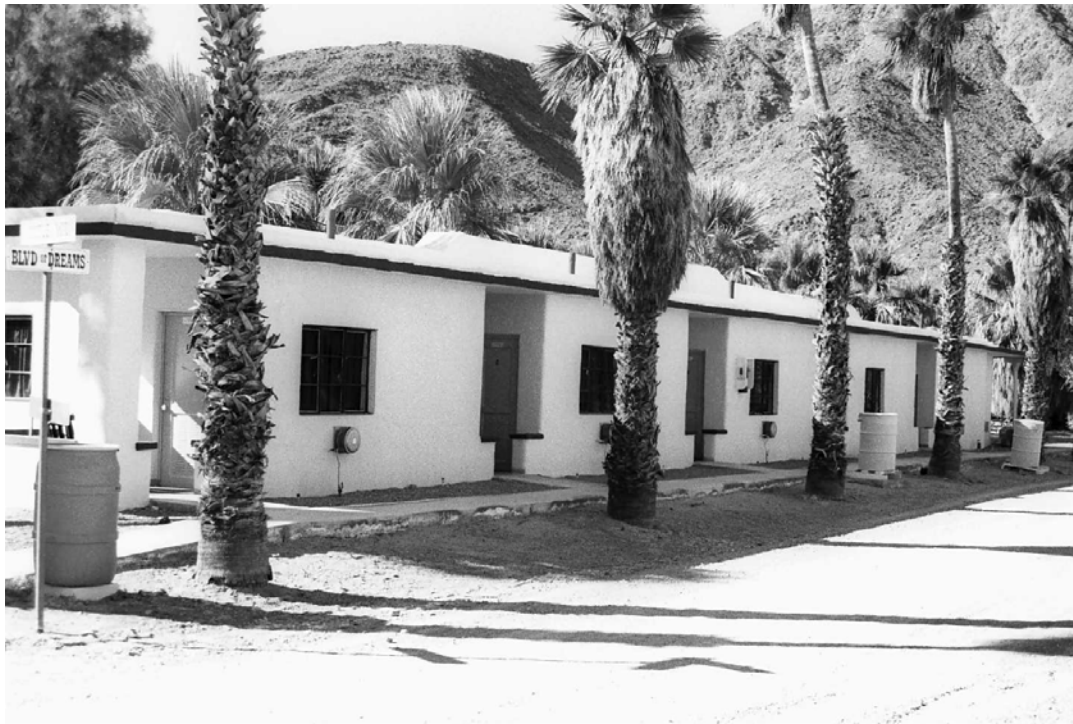
Buildings and Structures #2: Pool and south façade of Pool House. (PGSO, CLI, MOJA-N-0016-11, 2002)



Buildings and Structures #3: South façade of Main Building with planting beds. (PGSO, CLI, MOJA-N-0016-18, 2002)



Buildings and Structures #4: West façade of the Castle building with planting beds. (PGSO, CLI, MOJA-N-0018-2, 2002)



Buildings and Structures #5: South façade of the Lakefront Dormitory with Mexican fan palms and sidewalk. (PGSO, CLI, MOJA-N-0018-17, 2002)



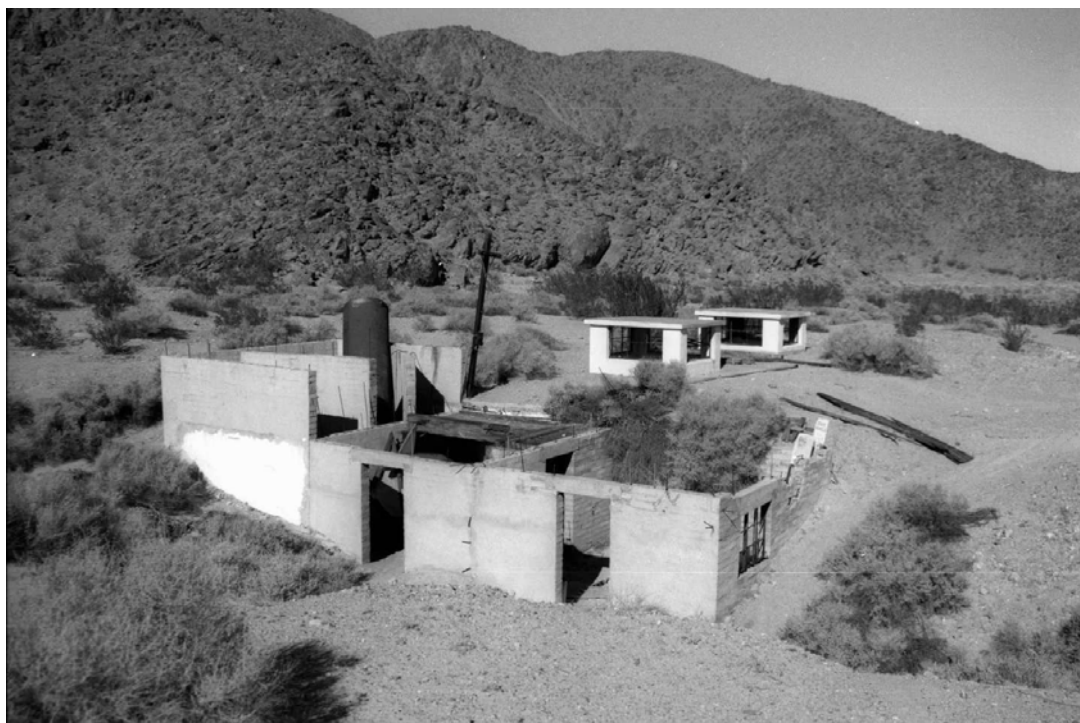
Buildings and Structures #6: South façade of the Zycott Dormitory with sidewalk. (PGSO, CLI, MOJA-N-0018-13, 2002)



Buildings and Structures #7: West façade of the Maintenance Buildings with California fan palms and Chub Street in the foreground. (PGSO, CLI, MOJA-N-0014-17, 2002)



Buildings and Structures #8: East façade of the Goat Barn with athels to the rear and remains of corral in foreground. (PGSO, CLI, MOJA-N-0013-22, 2002)



Buildings and Structures #9: South and east facades of the Rabbit House. (PGSO, CLI, MOJA-N-0013-15, 2002)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Basketball Court	Contributing	Zzyzx Mineral Springs Basketball Court	057314	ZZYZX10
Castle	Contributing	Zzyzx Mineral Springs Castle	056845	ZZYZX02
Dock	Contributing	Zzyzx Mineral Springs Lake Tuendae Dock	057335	ZZYZX31
Goat Farm	Contributing	Zzyzx Mineral Springs Goat Shed	057323	ZZYZX19
Gravel Loader	Contributing	Zzyzx Mineral Springs Gravel Separator	057318	ZZYZX14
Kennel	Contributing	Zzyzx Mineral Springs Dog Kennel	057319	ZZYZX15
Lakefront Dormitory	Contributing	Zzyzx Mineral Springs Lakefront Dormitory	057308	ZZYZX04

Loading Dock and Springer Block Maker	Contributing	Zzyzx Mineral Springs Loading Dock & Cement Mixer	057317	ZZYZX13
Main Building	Contributing	Zzyzx Mineral Springs Main Building	056844	ZZYZX01
Maintenance/Storage Buildings	Contributing	Zzyzx Mineral Springs Diesel Plant	057315	ZZYZX11
Pool	Contributing	Zzyzx Mineral Springs Pool	057311	ZZYZX07
Pool House	Contributing	Zzyzx Mineral Springs Poolhouse	057312	ZZYZX08
Rabbit House	Contributing	Zzyzx Mineral Springs Rabbitry	057325	ZZYZX21
Reservoir	Contributing	Zzyzx Mineral Springs Reservoir	057333	ZZYZX29
Springer Pump House	Contributing	Zzyzx Mineral Springs Springer Pump House	330142	
Sunrise Building	Contributing	Zzyzx Mineral Springs Sunrise Building	057313	ZZYZX09
Upper Storage Room	Contributing	Zzyzx Mineral Springs Upper Storage Room	330144	
Zycott Dormitory	Contributing	Zzyzx Mineral Springs Zzycot Dormitory	056846	ZZYZX03
Battery Building	Non-Contributing			
East Generator Building	Non-Contributing			
Handicapped Restroom	Non-Contributing			
Laboratory Building	Non-Contributing			
Manager's Residence	Non-Contributing			
Ramada #1	Non-Contributing	Zzyzx Mineral Springs Cabana 1	057309	ZZYZX05

Ramada #2	Non-Contributing	Zzyzx Mineral Springs Cabana 2	057310	ZZYZX06
Residence	Non-Contributing			
Restroom and Shower Building	Non-Contributing			
Reverse Osmosis Building	Non-Contributing			
South Generator Building	Non-Contributing			
Trash Shed	Non-Contributing			
Visitor Ramada	Non-Contributing			
Welding Shop	Non-Contributing			
West Generator Building	Non-Contributing			

Small Scale Features

Small-Scale Features are the elements that provide detail and diversity for both functional needs and aesthetic concerns in the landscape. At Zzyzx Mineral Springs, the small scale features represent a number of periods of development.

CONTRIBUTING

Concrete Tent Pads

Directly south of the Sunrise Building on the edge of Soda Lake are approximately six concrete tent pads attributed to Springer. They are the foundations of his first tents at Zzyzx Mineral Springs and are some of the earliest features of his establishment, most likely dating from 1945.

Stone Planting Basins

Ten rustic stone and concrete mortared planting basins were constructed along the northeast face of Limestone Hill across from the Pool House. Each is approximately 2 feet in diameter and filled with soil. Although little is known about these features, they have been attributed to the Springer period (see photo, Small Scale Features #1).

Curbs

In the main Zzyzx Mineral Springs area immediately south of Lake Tuendae are a number of concrete block and poured concrete curbs. These line the medians in the middle of the Boulevard of Dreams, the intersection of the Boulevard of Dreams and Zzyzx Road, and the arched planting beds in front of the Castle. Installed during Springer's period, these curbs have an eight-inch wide cap and often have electrical conduit imbedded in them to power light fixtures in the center of the medians. The conduit is no longer functional and is rusting, causing the poured concrete cap to spall in a number of places. One curb was reportedly added to the "west side of castle drive" in 1981 but it is not known if this is still extant (see photo, Small Scale Features #2).

Russelite Pads

Approximately five concrete pads attributed to the "Russelite" religious congregation, which briefly stayed at Soda Springs beginning in 1914, are found in the nursery/tree farm area immediately north of West Pond. These were either tent pads or frame cabin foundations. They are approximately 15 by 60 feet long and at least three have a 6-inch wide concrete foundation with a 1-inch deep poured concrete slab. Some were broken through during the Springer period in order to maintain furrow lines in the athel nursery/tree farm (see photo, Small Scale Features #3).

Outdoor Chapel, Cross, and Benches

A dirt trail, lined in places with stone, leads from the base of the north notch in Limestone Hill. Along this trail are rustic stone and concrete benches and steps. At the top of the hill and the end of the trail is an outdoor chapel with a stone altar, more benches and stone steps. Nearby is a depressed area enclosed by low stone walls. The wall on the north side of the depression is mortared. On the southeast is a small platform of dry-laid stone with soil in the center. Above this area are remains of a large wooden cross that once had electric light bulbs outlining it. The crosspiece, which had eight light bulbs, has fallen (see photo, Small Scale Features #4). The trail leading to this site is documented under the Circulation section of this report.

Lot Markers

Throughout the area to the west of the Zzyzx Road are concrete block pillars with a concrete coat, 16 inches square, and about 3 feet high. These pillars marked the lots in 25 (east to west) by 50 (north to south) feet intervals for a subdivision that Springer planned for the area in the 1960s. This plan to sell

lots and possibly to build approximately one hundred houses was likely the final infraction leading to his expulsion from the land by the Bureau of Land Management (see photo, Small Scale Features #5).

Palm Planting Depressions

An unknown number of depressions found in the undeveloped area between Zzyzx Road and the unnamed graded strip to the west have been attributed to Springer. They are circular, approximately 6 inches deep and 3 feet wide. Into the 1980s a number of palms were growing in some of these depressions, though remaining examples were removed by the Desert Studies Center in 1987 (see photo, Small Scale Features #6).

Bus Supports

Immediately southeast of the Manager's Residence are two formed concrete supports. These were reportedly placed underneath a secondhand bus used as a workshop by Springer.

Propane Tank Supports and Platform

Similar to the bus supports 200 feet to the north are two poured concrete propane tank supports on the east side of Chub Street. These reportedly date to the Springer period but it is not known whether they were used for their intended purpose. Adjacent to these is a Springer-block platform with a poured concrete cap currently used to store maintenance materials (see photo, Small Scale Features #7).

Power Poles

Numerous power poles run in lines both down the median of the Boulevard of Dreams and through the athel/palm nursery/tree farm to the Goat Barn. These are no longer in use and do not have connecting conduits.

Goat Pens

Associated with the Goat Farm are two goat pens roughly 30 feet in circumference. Made of railroad crossies and stock fencing, these fences have almost entirely collapsed.

Goat Feeding Troughs

Two concrete feeding troughs painted white still stand in the corral areas (see photo, Small Scale Features #8).

Tonopah and Tidewater Crossies

A number of Tonopah and Tidewater crossies are found on the former railroad grade at the southern end of the district. Only a small number remain in situ, while most have been scattered or arranged in rough piles.

Pet Cemetery Headstones

Two concrete headstones marked "CESAR" and "Rover" are found at the pet cemetery in the southern portion of the complex, and are the only markers in the area.

NONCONTRIBUTING

Gates

A number of gates, both chain link and swing, have been installed by the BLM and NPS along Zzyzx Road. A swing gate on Zzyzx Road was installed by the Desert Studies Center staff in 1989.

Fire Pit

A small stone and concrete fire pit was installed in the Goat Farm parking area by Desert Studies Center

employees in 1993.

Solar Cells

A large solar photo-voltaic cell panel was installed at the northern end of the maintenance area in 1993.

Propane and Diesel Tanks

A number of contemporary propane and diesel tanks have been installed throughout Zzyzx Mineral Springs to support activities of the Desert Studies Center.

E Clampus Vitus Plaque

Installed on May 6, 1984 by the local E Clampus Vitus chapter and the BLM, this poured concrete pedestal honors the site of Zzyzx Mineral Springs and its Soda Springs predecessor.

Telescope Mount

This concrete telescope mount on the northern end of Limestone Hill was poured in 1987.

Windmill

A contemporary electricity-generating windmill was installed on the northwest end of Limestone Hill at an unknown date.

Median Furniture

On the median in the center of the Boulevard of Dreams are a number of small scale features in addition to the cabanas which include picnic tables and bird baths. None of these date to the Springer period.

Despite the addition of a number of non-contributing small scale features following the Springer period, small scale features dating from the period of significance retain integrity and contribute to the significance of the historic district.



Small Scale Features #1: Stone planting basins on the northeast end of Limestone Hill. (PGSO, CLI, MOJA-N-0016-1, 2002)



Small Scale Features #2: Springer-block curbing at the intersection of Zzyzx Road and the Boulevard of Dreams. (PGSO, CLI, MOJA-N-0012-17, 2002)



Small Scale Features #3: Russellite tent pads in the athel nursery north of the Boulevard of Dreams. (PGSO, CLI, MOJA-N-0012-09, 2002)



Small Scale Features #4: Outdoor chapel on Limestone Hill with Zzyzx and north Soda Lake in the background. (PGSO, CLI, MOJA-N-0014-24, 2002)



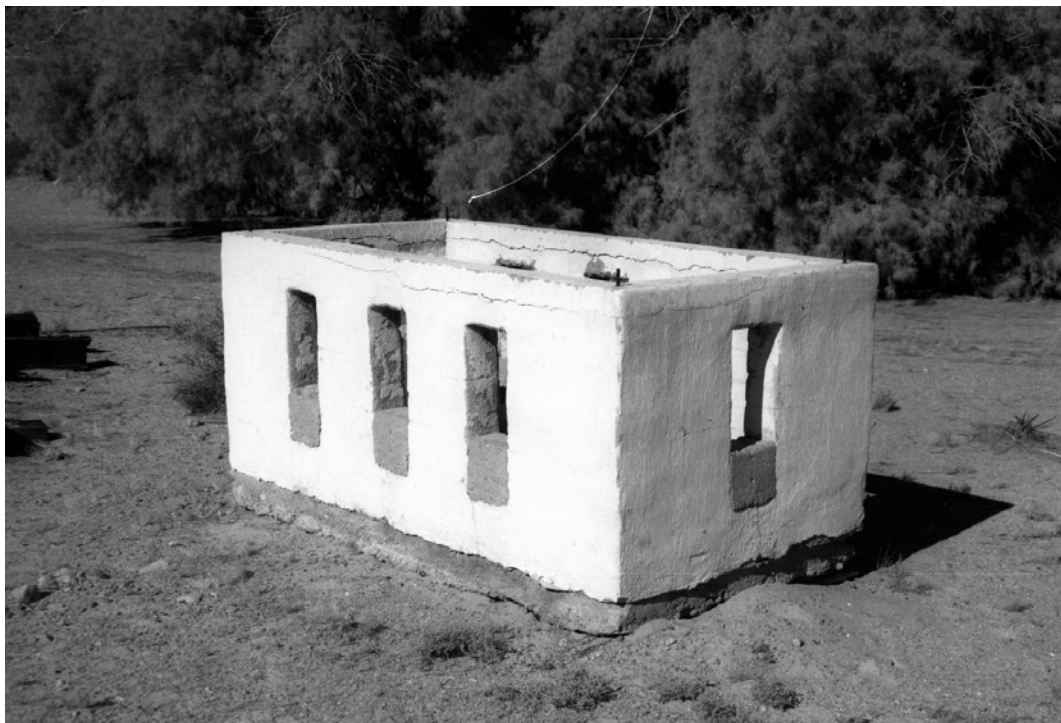
Small Scale Features #5: Lot markers delineating spring-planned development along Zzyzx Road. (PGSO, CLI, MOJA-N-0012-03, 2002)



Small Scale Features #6: Palm planting depressions to the west of Zzyzx Road in Springer-planned development area. (PGSO, CLI, MOJA-N-0012-6, 2002)



Small Scale Features #7: Propane tank supports and platform along Chub Street. (PGSO, CLI, MOJA-N-0014-19, 2002)



Small Scale Features #8: Goat feeding trough painted white. (PGSO, CLI, MOJA-N-0013-19, 2002)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Bus Supports	Contributing	Zzyzx Mineral Springs Bus Supports	330146	
Concrete Tent Pads	Contributing	Zzyzx Mineral Springs Concrete Tent Pads	057316	ZZYZX12
Cross	Contributing	Zzyzx Mineral Springs Electric Cross	057330	ZZYZX26
Curbs	Contributing	Zzyzx Mineral Springs Curbed Gravel And Dirt Roads	057338	ZZYZX34
Goat Feeding Troughs	Contributing	Zzyzx Mineral Springs Goat Feeding Structures	057324	ZZYZX20
Goat Pens	Contributing	Zzyzx Mineral Springs Goat Corral	057328	ZZYZX24
Lot Markers	Contributing	Zzyzx Mineral Springs Subdivision Boundary Markers	057340	ZZYZX35
Outdoor Chapel	Contributing	Zzyzx Mineral Springs Stone Benches	057326	ZZYZX22
Palm Planting Depressions	Contributing	N/A		
Pet Cemetery Headstones	Contributing	Zzyzx Mineral Springs Pet Cemetery	057329	ZZYZX25
Power Poles	Contributing	Zzyzx Mineral Springs Power Poles	057322	ZZYZX18
Propane Tank Supports	Contributing	Zzyzx Mineral Springs Fuel Tank Supports & Ladder	057320	ZZYZX16
Russelite Pads	Contributing	Russelite Camp Concrete Foundations	057341	SODASPR2
Springer-Block Platform	Contributing	Zzyzx Mineral Springs Fuel Tank Supports & Ladder	057320	ZZYZX16

Stone Planting Basins	Contributing	Zzyzx Mineral Springs Stone Planting Basins	330147	
E Clampus Vitus Plaque	Non-Contributing	Zzyzx Mineral Springs Plaque	056843	PLAQUE1
Fire Pit	Non-Contributing			
Gates	Non-Contributing			
Median Furniture	Non-Contributing			
Propane and Diesel Tanks	Non-Contributing			
Solar Cells	Non-Contributing			
Telescope Mount	Non-Contributing			
Windmill	Non-Contributing			

Circulation

Circulation within a landscape is defined as spaces, features, and applied material finishes which constitute systems of movement in a landscape.

Successive layers of use at Zzyzx Mineral Springs have left numerous remnant and active circulation features throughout the development that help in understanding how the location was linked both internally and with the surrounding landscape. Travelers passed on the Mojave Road between southern California and Arizona Territory during the 1860s, a stagecoach/mail line used the route during the 1870s, a railroad "station" and side track passed through the site until 1943, and the Zzyzx Mineral Springs development established a number of internal auto and pedestrian circulation patterns between 1944 and 1974. Still evident from these efforts are roads, foot trails, and an intended airstrip. Remains of the Tonopah and Tidewater Railroad within the district are scattered and have almost entirely lost integrity. Consequently, the remaining elements, route, the grade, and the remaining crossties are described as individual elements in topography, spatial organization, and small scale features respectively. Although it is believed that the Mojave Road crossed east to west across Soda Lake to the Zzyzx Mineral Springs area, its exact route is unknown. Portions of road beds within the development may be remnants of this route, although none can be verified.

While portions of both the Pacific Salt and Soda Company Works and the Pacific Coast Soda Company Works have circulation elements within them, namely railroad grades and ties, they have been discussed as a unit in the Archeology section of this document. Similarly, pedestrian ways closely associated with buildings such as the ramp behind the Main Building, the south entry into the pool, the ramp to the second floor of the Castle, and the Lakefront/Zycott Dormitorys sidewalks have been discussed with their associated building's characteristics.

CONTRIBUTING

East Foot Trail

Along the east side of Limestone Hill a dirt footpath of varying width runs from the Pool House south past the Pacific Coast Soda Company Works, and then west around Limestone Hill to Chub Street. This path was most likely originally used to access the springs at the base of the hill, and later to the soda works when they were active. Springer's first structures, the tent pads and Sunrise Building, were built along this path (see photo, Circulation #1).

Outdoor Chapel Trail

Running uphill from the notch in Limestone Hill south to the outdoor chapel is a trail in places lined with mortared stone benches and concrete and stone steps. Beyond the chapel this trail continues informally to the top of Limestone Hill (see photo, Circulation #2).

Zzyport

The Zzyport is an approximately 800 by 40 foot long strip of the Tonopah and Tidewater Railroad grade immediately north of the Zzyzx Mineral Springs development. It was widened by Springer in anticipation of converting it into an airstrip. It is not known if it was ever used for that purpose (see photo, Circulation #3). A wind-sock, now removed, hung from a pole near the south end. Wooden box culverts under the railroad grade are deteriorating and causing minor cave-ins, creating trenches on the surface.

Zzyzx Road

Zzyzx Road runs for four miles from Interstate 15 into Zzyzx Mineral Springs, ending at the southern

edge of the athel/palm nursery/tree farm. It is, however, actively used and maintained only to the Boulevard of Dreams. The one lane graded dirt and gravel road is twenty feet wide. As the road nears the main complex of buildings, it becomes divided with palms running down the middle, though only the east side is used. Immediately before reaching the Boulevard of Dreams, a swing gate installed in 1989 is crossed. At this point there is an entrance to the Visitor Area on the right (see photo, Circulation #4).

Boulevard of Dreams

This graded gravel road runs east-west from the BLM-constructed berm at the base of Springer Mountain eastward through Zzyzx Road and Chub Street, past West Pond, Lake Tuendae, the Lakefront Cottages and the Main Building. It terminates at the east end of the development in a gravel parking area defined by a semi-circle of palms. It is a two-lane route with a curbed central median that is eight feet wide and planted with athel and palms. The intersection with Zzyzx Road is marked by semi-circular curbs with concrete pillars at the arc-shaped ends (see photo, Circulation #5).

Castle Way and Sunset Boulevard

Castle Way is a graded dirt and gravel road running from the Boulevard of Dreams between the Castle and the Lakefront Dormitory southwest to Chub Street. It serves as both a road and parking lot, with its width varying from approximately 15 feet to 40 feet. The north and south sides are used as the main parking area for the Desert Studies Center (see photo, Circulation #6).

Reservoir Road

A dirt road with concrete paving remnants runs from the notch in Limestone Hill to the top of the northeast spur. This road appears to date from the Springer period as it provides the only access to the original reservoir (see photo, Circulation #7).

Remnant Roads

A remnant dirt road, mostly obscured now by athel and palm trees, runs from Chub Street along the southern face of Limestone Hill to the Pacific Coast Soda Company site. A second road remnant runs from the rear of the Goat Farm westward to the base of the Springer Mountain immediately west of the Rabbit House where it ends at a dump site.

Chub Street

Chub Street is a dirt and gravel road built largely on a portion of the Tidewater & Tonopah Railroad grade. It runs from the Boulevard of Dreams south to the vicinity of the Goat Farm, where it returns to the railroad grade (see photo, Circulation #8).

NONCONTRIBUTING

Visitor Ramada Parking Lot

The current visitor parking lot located along Zzyzx Road north of the Boulevard of Dreams was reconfigured in 2001 to support tourist traffic through the site.

The circulation features at Zzyzx Mineral Springs remain essentially unchanged from the period of significance. Circulation retains integrity as a contributing feature of the historic district.



Circulation #1: East Foot Trail along east side of Limestone Hill. (PGSO, CLI, MOJA-N-0015-12, 2002)



Circulation #2: A portion of the Limestone Hill trail to the Outdoor Chapel, with concrete remnants. (PGSO, CLI, MOJA-N-0017-6, 2002)



Circulation #3: Zzyport north into Soda Lake. (PGSO, CLI, MOJA-N-0017-10, 2002)



Circulation #4: Zzyzx Road south into Zzyzx Mineral Springs with athel nursery on left and median with palms on right. (PGSO, CLI, MOJA-N-0012-4, 2002)



Circulation #5: Boulevard of Dreams with curb-lined median down the center. (PGSO, CLI, MOJA-N-0014-8, 2002)



Circulation #6: Castle Way and parking lot. (PGSO, CLI, MOJA-N-0015-0, 2002)



Circulation #7: Base of Limestone Hill Road leading to the reservoir. (PGSO, CLI, MOJA-N-0018-22, 2002)



Circulation #8: Chub Street heading south into athel/palm nursery. (PGSO, CLI, MOJA-N-0015-6, 2002)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Chub Street	Contributing	Zzyzx Mineral Springs Dirt And Gravel Roads	330149	
Boulevard of Dreams	Contributing	Zzyzx Mineral Springs Curbed Gravel And Dirt Roads	057338	ZZYZX34
Castle Way and Sunset Boulevard	Contributing	Zzyzx Mineral Springs Curbed Gravel And Dirt Roads	057338	ZZYZX34
East Foot Trail	Contributing	N/A		
Outdoor Chapel Trail	Contributing	Zzyzx Mineral Springs Trail To Cross	057332	ZZYZX28
Remnant Roads	Contributing	Zzyzx Mineral Springs Dirt And Gravel Roads	330149	
Reservoir Road	Contributing	Zzyzx Mineral Springs Dirt And Gravel Roads	330149	
Zzyport	Contributing	Zzyzx Mineral Springs Zzyport	057339	ZZYZX36
Zzyzx Road	Contributing	Zzyzx Road	330148	
Visitor Ramada Parking Lot	Non-Contributing			

Land Use

Land Use is defined by the principal activities in the landscape that have formed, shaped, or organized the landscape as a result of human activity.

The location of Zzyzx Mineral Springs was originally a water source utilized by Native Americans in the west Mojave since at least 4000 BP to the proto-historic (1200-1850) period. It continued as a historic water source for the U.S. Army, travelers on the Mojave Road, workers on a stagecoach/mail line, workers on the Tonopah and Tidewater Railroad, and the Zzyzx Mineral Springs resort. However, evidence of only three land uses are prominently evident on the land today: the Tonopah and Tidewater Railroad grade, the two soda mining operations, and the Zzyzx Mineral Springs resort complex. As mentioned earlier, the former Tonopah and Tidewater Railroad grade runs north to south through the center of the complex, and both the Pacific Salt & Soda Company and Pacific Coast Soda Company Works remain on the western edge of Soda Lake. Neither of these is in use and they remain solely as remnant structures of a defunct land use within the landscape.

The Zzyzx Mineral Springs complex most clearly defines the historic land use at the site. This complex functioned as a health resort, manufacturing center for Springer's patent medicines, and recording studio for evangelical radio broadcasts from 1944 to 1974. Under the Zzyzx Mineral Springs period were a number of distinct land uses which supported the resort's daily functions. These include domestic, residential, maintenance, administrative, and refuse spaces. However, three distinct land uses served as potential sources of income for Springer's endeavors. These include raising rabbits in the Rabbit House, goats in the Goat Barn, and athel and palm trees in the extensive nursery/tree farm. Lastly, one relatively unique land use associated with Springer is the pet cemetery in the southern portion of the complex. There are seven to ten animal graves, which appear to date from the Springer period. Two have markers; "CESAR" and "Rover, Everybody's Friend."

Currently, the exclusive land use is that of the Desert Studies Center (DSC) which utilizes Springer period buildings (and contemporary additions) in their original administrative, residential, and maintenance functions. Established at the site in 1976, the DSC is a field station of the California State University providing opportunities for individuals and groups to conduct research, receive instruction and experience the desert environment.

With the total loss of Zzyzx Mineral Springs as a health resort and all its associated land uses, the present land use does not contribute to the significance of the historic district.

Vegetation

Vegetation analysis may include deciduous and evergreen trees, shrubs, vines, ground covers and herbaceous plants and plant communities, whether indigenous or introduced in the landscape.

Much of the contemporary imagery of Zzyzx Mineral Springs focuses on the massing of tall palm trees and athels within the complex in contrast with the flat Soda Lake in front and the steep Soda Mountains behind. This striking arrangement is exclusively a product of Springer period campaigns to establish a palm/athel nursery/tree farm, beautify the area, and promote the image of an oasis. Although the precise dates which Springer planted the decorative and utilitarian trees are unknown, they have been attributed to the primary development period of the 1950s. Species introduced by Springer include the following: oleander (*Nerium oleander*), California fan palm (*Washingtonia filifera*), Mexican fan palm (*Washingtonia robusta*), date palm (*Phoenix reclinata*), athel tamarisk (*Tamarix aphylla*). Currently, two non-contributing and eight contributing vegetation features remain on site. Further, mesquite (*Prosopis* sp.), a native, appears to have been planted by Springer as well.

LOST

Two vegetation features have been lost, however, following the period of significance. A number of palm trees were planted in the undeveloped area between Zzyzx Road and the unnamed graded strip to the west in stone planting basins. These were removed by the BLM at an unknown date in the early eighties. Further, approximately seven trees, most likely palms, appear to have been removed from the façade of the north maintenance room after 1975.

NONCONTRIBUTING

In 1989 the Manager's Residence was constructed and the surrounding yard was subsequently landscaped. A number of non-native species were planted surrounded by a low stone wall including Palo Verde (*Parkinsonia aculeata*) and a California fan palm. A second Palo Verde was planted in front of the Residence trailer to the south of the Managers Residence. The veranda in the front of this building was built around the tree. It should also be noted that the salt cedar, often mistaken for the athel tamarisk, occurs near water sources in the Mojave. Stands of this species are found generally to the east and south of Limestone Hill along Soda Lake and around "Iron Springs" and should not be considered contributing.

CONTRIBUTING

Contributing vegetation features within Zzyzx Mineral Springs are numerous, but can be grouped into eight general categories: the Sunrise Building plantings, Pool House plantings, Lake Tuendae palms, palm grids, Zycott athel, athel/palm nurseries, median plantings, Main Building and Castle planting beds, western boundary palm/oleander strip, Goat Barn athels.

Sunrise Building Plantings

Immediately in front of the east façade of the Sunrise Building are a number of plantings associated with Springer's first building at Zzyzx Mineral Springs. Approximately twelve Mexican fan palms are planted at regular intervals, perhaps one per room unit, with a number of oleanders interspersed. The understory on this façade has become overgrown with oleanders that in some places is blocking access to the building. At the south end is a very large grouping of athel tamarisk, recently pruned to prevent further damage to the Sunrise Building roof (see photo, Vegetation #1).

Pool House Plantings

On the west façade of the Pool House are four large athel tamarisk planted close to the foundation. Their roots are causing major structural damage to the building as evidenced by large cracks in the wall (see

photo, Vegetation #2). At the southern end of the pool is a large date palm, and in a graded picnic area to the northeast of the Pool House are approximately eight mesquites which appear to have been planted owing to their spacing and apparent pruning up from the ground (see photo, Vegetation #3).

Lake Tuendae Palms

One of the most recognizable and often photographed features of Zzyzx Mineral Springs is the line of Mexican fan palms surrounding Lake Tuendae. This feature effectively surrounds the lake at approximately twenty-foot intervals with an arched configuration at the eastern end with a second arched configuration jumping from the first (see photo, Vegetation #4). This second arch has a tighter configuration than the other palms and provides the visual terminus for the Boulevard of Dreams. They appear to have been planted after 1955, but during the Springer period.

Palm Grids

On the north and south sides of Castle Way are California fan palm groups planted in a grid layout. The group immediately west of the Zycott Dormitory has approximately forty trees on a 4 by 10 or 12 pattern. This group appears to be part of the nurseries, but does not have the alternating oleanders standard in the nurseries south of Limestone Hill (see photo, Vegetation #5). In front and to the west of the Restroom/Bathhouse, lining Castle Way, is another group of California fan palms two deep and approximately twenty long.

Zycott Athel Tree

A single, very large athel is found along the south face of the Zycott Dormitory. This tree has significant lateral growth making its strength suspect. Guy-wires and stout wooden supports have been placed around and under the tree in an attempt to stabilize it.

Athel/Palm Nurseries/Tree Farm

As part of an income generating plan of Springer's, two nurseries were established prior to 1955 although the initial plantings were solely athels. (photo, Stoll, 1994:50) The first lies to the north of the Boulevard of Dreams between Zzyzx Road and the Zzyport and is planted exclusively with athels. The second is south of Limestone Hill flanking Chub Street, and is planted with both athels and palms. These two features cover more acreage than any other element of Zzyzx Mineral Springs. Irrigated by a system fed from wells and the West Pond, water for these nurseries was pumped through the Springer Pump House to a central cast concrete pipe which ran north to south, ending to the east of the abandoned car dump. How the athels to the north were watered is unknown, though the athels and palms to the south were fed from the aforementioned pipe, through concrete block channels and into furrows often lined with wooden planks staked into the ground. In general, it appears the size and numbers of trees drops off as the furrows move away from the West Pond water source (to the north and south) suggesting that the irrigation system was not entirely efficient. Irrigation of the nurseries was continued by the BLM until cessation in the early to mid 1980s.

The athel nursery/tree farm consists of approximately fifteen parallel furrowed rows of trees running from the Boulevard of Dreams northward for approximately 500 feet. Here the rows are spaced twenty feet apart with each tree planted five feet apart. It appears that this nursery/tree farm was planted in two stages as evidenced by alternating tall and short rows of trees (see photo, Vegetation #6). Springer appears to have broken through some of the Russelite tent pads in order to maintain the straight furrows.

The athel/palm nursery/tree farm consists of approximately twenty parallel furrowed rows, ten on either side of Chub Street, to the south of Limestone Hill (see photo, Vegetation #7). The furrows run for approximately 400 feet north to south ending with what appears to be an irrigation channel and are planted with alternating athels and California fan palms. To the east of Chub Street the southern half of

the furrows are bare and do not appear to have been planted, though further investigation would be needed to confirm this. At the northern end of this nursery/tree farm are the remnants of a concrete block irrigation ditch running parallel to the furrows.

Median Plantings

Planted medians are found in the center of the two main axes at Zzyzx Mineral Springs: Zzyzx Road and the Boulevard of Dreams. With the closure of the western side of Zzyzx Road, the Zzyzx Road median now serves as the road's western edge. It runs for approximately 600 feet north and 200 feet south of the Boulevard of Dreams. The northern portion is irregularly planted with California fan palms and has an arched concrete curb with flanking concrete block pillars at the intersection with the Boulevard of Dreams. The southern portion has a centrally planted row of California fan palms flanked by two rows of oleanders. The oleanders became overgrown while irrigated but have now all died (see photo, Vegetation #8). This portion also has, at the northern end, an arched concrete curb with flanking concrete block pillars (see photo, Small Scale Features #2).

Down the center of the Boulevard of Dreams are three medians delineated by the intersecting axes of Zzyzx Road and Chub Street. Averaging ten feet wide, these medians are defined by concrete curbing. Interspersed by various non-contributing small scale features, mature athels are found in the center of all three medians with a single California fan palm at the western end.

Main Building and Castle Planting Beds

Planting beds are found along the entire façade of the Main Building and the Castle. The Main Building façade and west end have at their base a low concrete wall approximately four feet from the front of the building. The wall is broken by doorways into the building and consequently forms four planting beds. At the eastern end, the bed curves around the outdoor patio and contains five California fan palms and a single oleander. The two beds in the center contain approximately nine oleanders total (see photo, Buildings and Structures #3). The westernmost bed on the Main Building curves around the corner of the building and extends back along a walkway to the storage entry doorway. This bed contains a tight cluster of mixed fan/date palms and oleander.

Along the front of the Castle are five planting beds: one wrapped around the northern end of the building and four in half-round configurations between entryways. The bed on the northern end contains a mix of fan palms and date palms while the other four contain one or two fan palms each (see photo, Vegetation #9).

Palm and Oleander Strip

Between the southernmost dump sites and the automobile dump is a curvilinear row of alternating California fan palms and oleanders running along the base of the Soda Mountains. Approximately 0.8 miles north of Zzyzx Mineral Springs, at the base of the Soda Mountains along Zzyzx Road, is a small cluster of California fan palms on the western side of the road. Although it is not known if these two groupings were ever connected, there may have been a continuous strip in light of the lack of water in the area of the northern cluster.

Goat Barn Athels

Numerous athels were planted on the north, west, and south sides of the Goat Barn. These trees were planted immediately against the building, are now mature, and are causing structural damage.

The vegetation patterns established during the Springer period are some of the most striking, informative, and essential elements of the development at Zzyzx Mineral Springs. As a whole, they retain integrity and are a contributing characteristic of the historic district.



Vegetation #1: Overgrown Sunrise Building plantings containing athels, oleanders, and Mexican fan palms. (PGSO, CLI, MOJA-N-0015-16, 2002)



Vegetation #2: Pool House athels on west façade, not cracking in wall due to root damage. (PGSO, CLI, MOJA-N-0016-8, 2002)



Vegetation #3: Mesquite trees to the east of the Pool House. (PGSO, CLI, MOJA-N-0016-7, 2002)



Vegetation #4: Arc of palms at the eastern end of the Boulevard of Dreams. (PGSO, CLI, MOJA-N-0014-7, 2002)



Vegetation #5: California fan palm grid at the corner of the Boulevard of Dreams and Zzyzx Road. (PGSO, CLI, MOJA-N-0017-22, 2002)



Vegetation #6: Alternating heights of athels in nursery north of the Boulevard of Dreams. (PGSO, CLI, MOJA-N-0012-8, 2002)



Vegetation #7: Collage of athel/palm nursery to the south and southwest of Limestone Hill. (PGSO, CLI, MOJA-N-0014-28,29,30, 2002)



Vegetation #8: Southern portion of Zzyzx Road median with California fan palms and dead oleanders. (PGSO, CLI, MOJA-N-0013-0, 2002)



Vegetation #9: Planting beds in front of the Castle Building. (PGSO, CLI, MOJA-N-0017-7, 2002)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Athel/Palm Nurseries	Contributing			
California Fan Palm Grids	Contributing			
Goat Barn Athels	Contributing			
Lake Tuendae Mexican Fan Palms	Contributing			
Main Building and Castle Planting Beds	Contributing			
Median Plantings	Contributing			
Pool House Plantings	Contributing			
Sunrise Building Plantings	Contributing			
Palm and Oleander Strip	Contributing			

Zycott Athel Tree	Contributing
Manager's Residence Landscaping	Non-Contributing
Residence Trailer Palo Verde	Non-Contributing

Spatial Organization

Spatial Organization is defined as the three dimensional organization of physical forms and visual associations in the landscape, including the articulation of ground, vertical, and overhead planes that define and create spaces.

Before the Springer period, spatial patterns at Zzyzx Mineral Springs developed independently in accordance with the production and transportation needs of the two soda works and the Tonopah and Tidewater Railroad. The soda works located along the eastern and northern bases of Limestone Hill to take advantage of the low-lying water collection areas while maintaining proximity to higher ground for access and production purposes. Almost in tandem, the Tonopah and Tidewater Railroad constructed its tracks on higher ground to the west of Limestone Hill at the base of the Soda Mountains. This railroad bed provided one axis of the three that would later serve as the primary organizational elements of the Zzyzx Mineral Springs development.

Springer period development took advantage of the former railroad bed, converting it to Chub Street with the addition of the almost-parallel Zzyzx Road and the perpendicular Boulevard of Dreams. These three axes established not only the main circulation patterns but also the backbone of contemporary spatial organization at Zzyzx Mineral Springs. With the exception of the earliest Sunrise and Pool House buildings, all Springer period development occurred immediately adjacent to these roads on a grade higher than Soda Lake during the wet season. These developments occurred both linearly and in nodes throughout the area. Along Zzyzx Road and the southern portion of Chub Street, the athel/palm nurseries were established in rows parallel to these corridors. Further, Springer's planned development along Zzyzx Road (see small scale features) further utilized this parallel arrangement by laying a grid subdivision upon it. Centrally arranged around the intersection of these roads are the three primary nodes: the primary residential and administrative area; to the south of this on both sides of Chub Street is the maintenance area; and further south at the end of Chub Street is the husbandry area (see cluster arrangement).

Spatial Organization retains integrity as a contributing feature of the historic district.

Constructed Water Features

Constructed Water Features are built features and elements that utilize water for aesthetic or utilitarian functions in the landscape.

CONTRIBUTING

Lake Tuendae

North of the Boulevard of Dreams and east of Chub Street is Lake Tuendae, originally excavated by Springer about 1955. The lake is oblong, about 500 feet east-west by 125 feet north-south and is fed by a well on site. The lake lies about four feet above the dry surface of Soda Lake and is surrounded by a ring of Mexican fan palms. At the eastern end is a 6 inch thick, about 4 feet by 12 feet long concrete slab dock, supported by two concrete posts. The Enrico Caruso Fountain is located in the center of the lake (see photo, Constructed Water Features #1). Lake Tuendae serves as one of two remaining habitats of the endangered Mojave chub (the other being the Springer-enhanced spring on to the east of Limestone Hill).

Enrico Caruso Fountain and Valve Box

The fountain is a working stone and concrete feature consisting of three circular tiers of stone masonry rising from a stone base. Water sprays from the top tier in a cone-shaped configuration with the runoff cascading down the tiers in small rectangular outlets on each level. At the middle of the south side of the lake there is a valve box with a concrete slab top and concrete block walls.

Irrigation System

Throughout the palm/athel nursery/tree farm are furrows of which some in the southern portions are lined with pieces of milled lumber. These furrows in turn connect to two irrigation channels running perpendicular to them; these are concrete and concrete block lined and found along the northern edge of the Boulevard of Dreams and the northern edge of the southernmost portion of the athel/palm nursery/tree farm (see photo, Constructed Water Features #3). Although only a portion of the main water supply, a twenty-four inch concrete pipe running north/south, can be seen immediately east of the abandoned cars; it is presumed that it runs to the well water source in the maintenance area (see photo, Constructed Water Features #4).

Pumping System Remnants

Immediately south of Limestone Hill, east of Chub Street are the remains of a pumping system. Encased in and extruding from a large concrete block lying on its side, are a number of pipes and valves. This system is likely associated with "Iron Springs," a water source 100 feet to the east (see photo, Constructed Water Features #5).

Timber-lined Pools

Approximately 200 feet east of Chub Street, to the south of the Pacific Coast Soda Company railroad grade, is an isolated pool excavated into the salt flats. This 8 foot square feature is a minimum of 2 feet deep and has walls of flat wooden planks supported by upright wooden posts approximately 6 inches square. Its origins are unknown. Approximately 150 feet to the southeast of the 8 foot square pool is another similar construction with walls 6 feet square. Its origins are also unknown (see photo, Constructed Water Features #6).

Ditches

A number of large ditches, presumably to channel water from Soda Lake into the two soda works operations, exist along the western edge of Soda Lake at Zzyzx Mineral Springs. One ditch runs east to west at the southernmost edge of the athel/palm nursery/tree farm and appears to be the terminus of the

irrigation system (see photo, Constructed Water Features #7).

NON-CONTRIBUTING

West Pond (West Lake, Bat Pond, Three Bats Pond)

Located immediately southwest of the intersection of the Boulevard of Dreams and Chub Street is West Pond (see photo, Constructed Water Features #2). This roughly 100-foot square body of water is a man-made feature begun at an unknown date by Elmo Proctor as a shaft for mining gold. There was reportedly gold in black sand in the shaft, but upon excavation the shaft filled with water to a level four feet above the floor of Soda Lake and couldn't be pumped out. When Springer arrived, the shaft was water-filled with six by six timbers sticking up out of it. Springer and his son blasted it larger with dynamite but it continued to fill with water. They then constructed a four foot diameter concrete shaft in an attempt to extract the gold, but ultimately it served only as a well. The Bureau of Land Management apparently enlarged it into a pond or lake after Springer left, but it proved not to be suitable habitat for the Mojave chub, which had been their intention.

The constructed water features at Zzyzx Mineral Springs remain essentially intact and in some cases are still used. Constructed water features retain integrity and contribute to the significance of the historic district.



Constructed Water Features #1: Lake Tuendae with Mexican fan palms. (PGSO, CLI, MOJA-N-0014-11, 2002)



Constructed Water Features #2: West Pond from the maintenance yard, with the Springer pumphouse in the foreground. (PGSO, CLI, MOJA-N-0014-13, 2002)



Constructed Water Features #3: Athel/palm nursery irrigation channel west of Chub Street. (PGSO, CLI, MOJA-N-0013-4, 2002)



Constructed Water Features #4: Broken end of main irrigation conduit near abandoned cars. (PGSO, CLI, MOJA-N-0013-3, 2002)



Constructed Water Features #5: Pumping system remnants in athel/aplm nursery. (PGSO, CLI, MOJA-N-0013-6, 2002)



Constructed Water Features #6: Timber lined pool in Soda Lake. (PGSO, CLI, MOJA-N-0013-24, 2002)



Constructed Water Features #7: Drainage ditch from Soda Lake to Pacific Salt and Soda Company remains. (PGSO, CLI, MOJA-N-0014-6, 2002)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Irrigation System	Contributing	Zzyzx Mineral Springs Nursery Irrigation System	057321	ZZYZX17
Ditches	Contributing	Soda Workes Ditches	330153	
Enrico Caruso Fountain and Valve Box	Contributing	Zzyzx Mineral Springs Lake Tuendae Fountain	057336	ZZYZX32
Lake Tuendae	Contributing	Zzyzx Mineral Springs Lake Tuendae	057334	ZZYZX30
Pumping System Remnants	Contributing	Zzyzx Mineral Springs Pumping System Remnants	330151	
Timber-lined Pools	Contributing	Soda Springs Timber-Lined Pools	330152	
West Pond (West Lake, Bat Pond, Three Bats Pond)	Non-Contributing			

Archeological Sites

Archeological sites inventoried by the CLI include the location of ruins, traces, or deposited artifacts in the landscape and are evidenced by the presence of either surface or substance features. The CLI takes every precaution not to disclose the location of sensitive archeological sites to preserve the resources.

A number of potential and identified archeological sites exist within Zzyzx Mineral Springs area which are primarily associated with Native American use of the springs area prior to European arrival. Further trash scatter sites have been tentatively identified which are associated with historic use and occupation. The primary archeological features associated with the period of significance are the two soda works sites in the eastern portion of the district.

Remains of Pacific Coast Soda Company Works

To the southeast of Limestone Hill extending onto the bed of Soda Lake are the remains of the Pacific Coast Soda Company Works. They consist of three approximately 50 by 50 foot square ponds in addition to concrete foundations, stone-walled platforms, metal remnants on the higher grade to the west (see photo, Archeology #1). Built in 1907-8, these are smaller than those of the rival Pacific Salt and Soda Company to the north. Immediately south and southeast of Limestone Hill above the Soda Lake waterline are a number of concrete stone foundation pads which once housed various machinery for processing the raw chemical salts. Rusty bolts extend up out of the concrete, showing how machinery was anchored (see photo, Archeology #2). A 30-inch gauge railroad grade extended alongside some of this machinery and descended down a gentle grade onto the lake bed to the east and then extended roughly one mile out into the lakebed. There, it crosses a channel in the lake bed and then curves to the northeast, finally terminating out on the salt flat. Crossties are found in situ only out on the lakebed, while others appear to have floated to scattered locations nearby (see photo, Archeology #3).

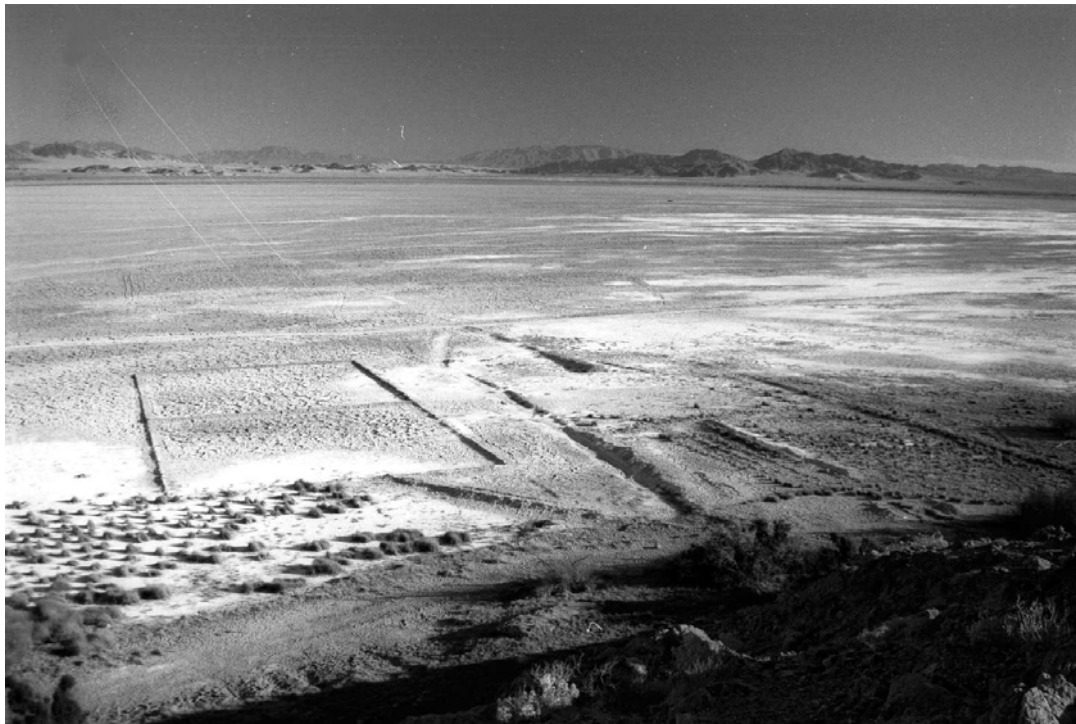
Remains of Pacific Salt and Soda Company Works

On the flat bed of Soda Lake to the north and northeast of Lake Tuendae lie the remains of the Pacific Salt and Soda Company established in 1907 and operated intermittently until 1912. The area contains remnant evaporative ponds, numerous embankments, remains of wooden sluice gates and walls, machinery foundations, and remains of a 36-inch gauge railroad grade. The main evaporative ponds are surrounded by a low wood and earth berm approximately 300 feet by 50 feet long on a northeast to southwest axis with a railroad grade along the northwest side (see photo, Archeology #4). At the southwest end are a number of railroad ties and machinery foundations of consolidated gravel with threaded rod protruding (see photo, Archeology #5 and #6).

Trash Dumps

A number of locations predominantly to the south and west of the main Zzyzx complex were used as trash dumps by Springer and potentially by other, earlier occupants of the site. Along the western edge of the complex, at the base of the mountains is a large area filled with abandoned car bodies, most of which appear to date to within the Springer period. A second dumping area filled with construction debris and derelict appliances is located along the base of the mountains west of the Goat Barn. A third dump, likely used for trash burning is found immediately southeast of the southern terminus of Chub Street.

Due primarily to the remains of the two soda works operations, archeology at Zzyzx Mineral Springs contributes to the significance of the district.



Archeology #1: Remains of Pacific Coast Soda Company Works. (PGSO, CLI, MOJA-N-0014-33, 2002)



Archeology #2: Foundation and machinery remnants from the Pacific Salt and Soda Company Works. (PGSO, CLI, MOJA-N-0015-10, 2002)



Archeology #3: Narrow-gauge railroad crossties from former Pacific Salt and Soda Company Works line into Soda Lake. (PGSO, CLI, MOJA-N-0014-1, 2002)



Archeology #4: Pacific Coast Soda Company berms. (PGSO, CLI, MOJA-N-0017-16, 2002)



Archeology #5: Outline of the Pacific Coast Soda Company Works from Limestone Hill. (PGSO, CLI, MOJA-N-0014-26, 2002)



Archeology #6: Remains of wooden Pacific Coast Soda Company Works berm reinforcements. (PGSO, CLI, MOJA-N-0017-19, 2002)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Remains of Pacific Coast Soda Company Works	Contributing	Pacific Coast Soda Company Works Ruins	056847	SODASPR1
Remains of Pacific Salt and Soda Company Works	Contributing	Pacific Salt And Soda Company Works Ruins	330022	SODASPR3
Trash Dumps (3)	Contributing	N/A		

Cluster Arrangement

The Cluster Arrangement of a landscape refers to the location and patterns of buildings, structures, and associated spaces.

At Zzyzx Mineral Springs, five clusters have developed in response to the needs of both the two soda works operations and the ensuing Springer development. At the Pacific Salt and Soda Company works at the northern end of the complex the remaining evaporating ponds stretch in a southwest to northeast direction from a small grouping of remaining machinery and railroad features. The machinery and railroads were necessarily located on higher ground to the west of the ponds to insure solid footing and easy access. To the southeast of Limestone Hill, the remains of the Pacific Coast Soda Company are arranged in a similar fashion with the evaporative ponds on the lower elevation to the west and the machinery and other supportive features on the higher grade to the east.

The three additional clusters are associated with Springer development and consist of the administrative/residential, maintenance, and husbandry clusters. On the north end of Limestone Hill is the administrative/residential cluster located to take advantage of the main access to the site, the striking views across the lake, the relationship between the structures and Lake Tuendae. The buildings in this cluster are all arranged at the north and east bases of Limestone Hill, facing outward toward Soda Lake and Lake Tuendae and are all a short walking distance apart. Visitors to the resort could spend their entire stay within this cluster without having to see or walk through the maintenance and husbandry clusters to the south. The maintenance cluster is located immediately south of West Pond on the western slope of Limestone Hill. With elements on both sides of Chub Street, this cluster consists primarily of the north and south rooms of the maintenance buildings and the multipurpose (brick making) area across the street. This cluster grouped the everyday upkeep functions as well as the noisier elements that may have been unpleasant to visitors in a separate space visually isolated from the administrative/residential area.

The final cluster is associated with animal husbandry and includes the Rabbitry, Goat Barn with athels, and goat pens. These are located in an isolated area approximately 600 feet to the south of West Pond at the end of the athel/palm nursery/tree farm. The processes associated with raising rabbits and goats would most likely have been, like those in the maintenance area, unpleasant to visitors. The odors and noise necessitated a location far enough away to avoid impacting the main area.

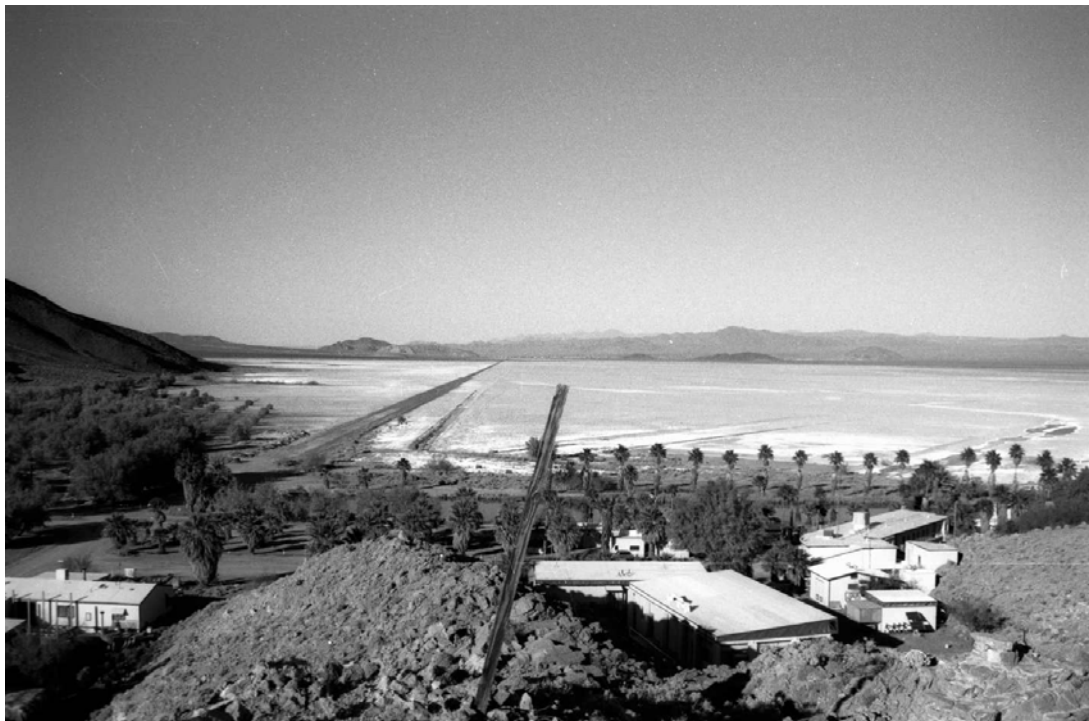
The cluster arrangements have remained intact from the period of significance, retain integrity, and contribute to the significance of the historic district.

Views And Vistas

Views and Vistas are the prospect afforded by a range of vision in the landscape conferred by the composition of other landscape characteristics and associated features. Views are typically expansive or panoramic, while vistas are more controlled and linear.

At Zzyzx Mineral Springs, the views across Soda Lake are essential elements of the site. This flat and unobstructed lakebed runs from the Soda Mountains eastward to the Marl and Kelso Mountains. The Sunrise Building, Pool and Pool House, and the Outdoor Chapel were all situated in order to take advantage of magnificent views across the broad expanse (see photos, Views and Vistas #1, Archeology #5).

Views and vistas retain integrity as a contributing characteristic of the historic district.



Views and Vistas #1: View from Limestone Hill to the north. (PGSO, CLI, MOJA-N-0014-27, 2002)

Topography

Topography is the three dimensional configuration of the landscape surface characterized by features (such as slope and articulation) and orientation (such as elevation and solar aspect).

Numerous changes have been made to the topography of the Zzyzx Mineral Springs area since the early twentieth century. The railroads, soda companies, and Zzyzx developments have all made significant changes to the surface, the majority of which are still extant. The most prominent topographical alterations include the various soda works berms, grades, and troughs, the Zzyzx Road grade, and the generally level slope of the Zzyzx core area and athel/palm nursery/tree farm.

The essential physical elements of the two soda works efforts are the berms, railroad grades, and troughs created to collect and impound water in the bed of Soda Lake. These alterations are numerous and essentially stretch along the entire eastern side of Zzyzx Mineral Springs. They remain as striking geometric structures on the otherwise flat lakebed and are described in the archeology section of this inventory. In contrast to these obvious lakebed aberrations are the numerous grading efforts of the core area. These include the graded surface of Zzyzx Road and the leveled core areas surrounding the main buildings.

CONTRIBUTING

Zzyzx Road Grade

Zzyzx Road has been graded to remain primarily above the high water mark of Soda Lake at its western edge. This configuration is retained by grading the route several times a year (see photo, Topography #1).

Zzyzx Mineral Springs Core Area

The overall form of the topography immediately surrounding Zzyzx Mineral Springs is that of a playa or gentle slope from the Soda Mountains eastward to Soda Lake. In the core area, this slope has been graded to a relatively flat surface in order to more efficiently build structures, park cars, plant nurseries, and lay out further developments.

Rabbit House Swale

Leading from the Rabbit House eastward to the end of Chub Street is an approximately ten foot deep swale flanked by berms. This appears to have been created as an easier access route to the subterranean Rabbit House than travelling over the surrounding topography (see photo, Topography #2).

NONCONTRIBUTING

Dredging Spoils Depositions

Within the athel/Palm nursery/tree farm immediately northwest of Lake Tuendae is a large pile of soil and vegetable matter from Lake Tuendae dredged during the 2001/02 lake restoration efforts. Within the maintenance area immediately south of West Pond is another series of soil piles from a previous dredging operation. Neither of these depositions have any historic affiliations.

Tonopah and Tidewater Railroad Grade

The berm or "grade" on which the track of the former Tonopah & Tidewater Railroad, once lay, passes from southwest to northeast between Limestone Hill on the west side of Soda Lake and the Soda Mountains. The later development of Zzyzx Mineral Springs, however, resulted in the obliteration of all traces of the grade within the core area. Now part of both the Zzyport and Chub Street, the grade has been altered to the extent that it is no longer recognizable as a railroad grade.

Flood Control Berm

A large berm constructed in the 1980s of dirt and remnant construction materials was installed by the BLM at the west end of the Boulevard of Dreams to divert water flow down Springer Mountain from entering the area.

Topographical changes are essentially part of the Springer period development of Zzyzx Mineral Springs and remain a contributing element of the historic district.



Topography #1: Elevated road grade along Zzyzx Road. (PGSO, CLI, MOJA-N-0011-14, 2002)



Topography #2: Swale leading from Chub Street to the Rabbitry. (MOJA-N-0013-13, 2002)

Characteristic Feature	Type Of Contribution	LCS Structure Name	IDLCS Number	Structure Number
Rabbit House Swale	Contributing			
Zzyzx Road Grade	Contributing			
Dredging Spoils Depositions	Non-Contributing			
Flood Control Berm	Non-Contributing			
Tonopah and Tidewater Railroad Grade	Non-Contributing			

Management Information

Descriptive And Geographic Information

Historic Name(s): Zzyzx Mineral Springs
Soda Springs

Current Name(s): Zzyzx Mineral Springs
Zzyzx
Soda Springs

Management Unit:

Tract Numbers:

State and County: San Bernardino County, CA

Size (acres): 402.00

Boundary UTM

Boundary UTM(s):	Source	Type	Datum	Zone	Easting	Northing
	USGS Map 1:24,000	Point	NAD 83	11	582832	3888832
	USGS Map 1:24,000	Point	NAD 83	11	581639	3888840
	USGS Map 1:24,000	Point	NAD 83	11	581332	3890470
	USGS Map 1:24,000	Point	NAD 83	11	581537	3888442
	USGS Map 1:24,000	Point	NAD 83	11	581981	3890468
	USGS Map 1:24,000	Point	NAD 83	11	581611	3888755
	USGS Map 1:24,000	Point	NAD 83	11	582832	3888741
	USGS Map 1:24,000	Point	NAD 83	11	581206	3888442

GIS File Name: None

GIS File Description:

National Register Information

National Register Documentation: No Documentation

Explanatory Narrative:

No National Register documentation exists for Zzyzx Mineral Springs. A draft nomination will be produced by the Pacific Great Basin Support Office in tandem with the Mojave National Preserve in 2002.

National Register Eligibility:	Undetermined
Explanatory Narrative:	
Date of Eligibility Determination:	
National Register Classification:	District
Significance Level:	Local
Contributing/Individual:	Individual
Significance Criteria:	C -- Inventory Unit embodies distinctive characteristics of type/period/method of construction; or represents work of master; or possesses high artistic values; or represents significant/distinguishable entity whose components lack individual distinction B -- Inventory Unit is associated with the lives of persons significant in our past

Period Of Significance

Time Period: 1853 - 1974 AD

Historic Context Theme:	Peopling Places
Historic Context Subtheme:	Westward Expansion of the Colonies and the United States, 1763-1898
Historic Context Facet:	Explorations Of The West
Historic Context Theme:	Peopling Places
Historic Context Subtheme:	Westward Expansion of the Colonies and the United States, 1763-1898
Historic Context Facet:	Western Trails And Travelers
Historic Context Theme:	Creating Social Institutions and Movements
Historic Context Subtheme:	Recreation
Historic Context Facet:	General Recreation
Historic Context Theme:	Creating Social Institutions and Movements
Historic Context Subtheme:	Social and Humanitarian Movements
Historic Context Facet:	Poverty Relief And Urban Social Reform

Area Of Significance:

Category:	Social History
Priority:	1
Category:	Transportation
Priority:	2
Category:	Exploration/Settlement
Priority:	3

Category:	Entertainment/Recreation
Priority:	4

National Historic Landmark Information

National Historic Landmark Status:	No
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World Heritage Site Information

World Heritage Site Status:	No
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Cultural Landscape Type and Use

Cultural Landscape Type:	Historic Designed Landscape
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Current and Historic Use/Function:

Use/Function Category:	Industrial/Processing/Extraction
Use/Function:	Industrial/Processing/Extraction-Other
Detailed Use/Function:	Industrial/Processing/Extraction-Other
Type Of Use/Function:	Historic

Use/Function Category:	Recreation/Culture
Use/Function:	Recreation/Culture-Other
Detailed Use/Function:	Recreation/Culture-Other
Type Of Use/Function:	Historic

Use/Function Category:	Education
Use/Function:	Research Facility (Laboratory)
Detailed Use/Function:	Research Facility (Laboratory)
Type Of Use/Function:	Current

Use/Function Category:	Transportation
Use/Function:	Rail-Related
Detailed Use/Function:	Station (Depot)
Type Of Use/Function:	Historic

Use/Function Category:	Transportation
Use/Function:	Road-Related
Detailed Use/Function:	Road-Related-Other
Type Of Use/Function:	Historic

Ethnographic Information

Ethnographic Survey Conducted: No Survey Conducted

Adjacent Lands Information

Do Adjacent Lands Contribute? No

Adjacent Lands Description:

General Management Information

Management Category: May Be Preserved Or Maintained

Management Category Date:

Explanatory Narrative:

The management category of "May be Preserved or Maintained" has been established due to the unit's lack of continuing or potential purpose that is appropriate to its traditional use or function. Preliminary study also indicates potential eligibility for listing on the National Register of Historic Places.

Condition Assessment And Impacts

The criteria for determining the condition of landscapes is consistent with the Resource Management Plan Guideline definitions (1994) and is decided with the concurrence of park management. Cultural landscape conditions are defined as follows:

Good: indicates the landscape shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The landscape's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the landscape shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the character-defining elements will cause the landscape to degrade to a poor condition.

Poor: indicates the landscape shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining historical and natural values.

Undetermined: Not enough information available to make an evaluation.

Condition Assessment: Fair

Assessment Date: 02/28/2002

Date Recorded: 02/28/2002

Park Management Concurrence: Yes **Concurrence Date:** 9/27/2002

Level Of Impact Severity: Moderate

Stabilization Measures:

Impact:

Type of Impact: Deferred Maintenance

Internal/External: Internal

Description:

Continued use by the Desert Studies Center provides an excellent preservation tool for the structures at Zzyzx Mineral Springs. The Center's maintenance is thorough and well documented, although by necessity they do not utilize every structure in the district. As a result, buildings such as the Goat Barn and the Rabbitry do not receive regular maintenance and have been negatively effected as a result. Routine maintenance schedules need to be established by the preserve for all buildings and structures in the district.

Type of Impact: Neglect

Internal/External: Internal

Description:

Beyond deferred maintenance of certain structures within Zzyzx Mineral Springs is the near-total neglect of the Sunrise Building. This structure is in poor condition with doors falling apart and structural damage from surrounding vegetation. Significant mitigation to both the building and the surrounding vegetation is needed in order to stabilize the Sunrise Building.

Type of Impact: Structural Deterioration

Internal/External: Internal

Description:

The west wall of the Pool House is being significantly lifted and cracked from the adjacent athel roots, and the east wall of the pool has begun to crack. Mitigation efforts should be established to stabilize these walls immediately.

Type of Impact: Planting Practices

Internal/External: Internal

Description:

Active watering of the athel/palm nurseries was ceased by the BLM in the early 1980s. As a result much of the nursery stock, the entire oleander row down the center of Zzyzx Road in particular, has died. A watering plan should be established to retain the historic vegetation in the district.

Type of Impact: Vandalism/Theft/Arson

Internal/External: External

Description:

Off-road vehicles are allowed only on established dirt roads within the preserve. The western edge of Soda Lake, however, is often the site of much off-road activity due to the flat, open nature of the dry lake. In this area are a number of soda works berms, railroad grades, railroad cross-ties, and other historic material that is being heavily impacted by tire ruts. A signage and periodic ranger inspection program should be established to minimize this damage.

Type of Impact: Structural Deterioration

Internal/External: Internal

Description:

Metal conduits embedded within the curbs along the Boulevard of Dreams are rusting and causing the surrounding concrete to spall. Mitigation efforts should be determined to slow this process.

Type of Impact: Operations On Site

Internal/External: Internal

Description:

The Desert Studies Center has added a number of buildings, structures, and small scale features to the district. Further additions should be planned through the park.

Agreements, Legal Interest, and Access

Management Agreement: None

Explanatory Narrative:

“The California Desert Protection Act (section 514) calls for a cooperative management agreement between the (NPS) and the CSU to manage facilities and provide desert research and education at the Soda Springs Desert Study Center...” (draft GMP/EIS: 62)

NPS Legal Interest: Fee Simple Reservation

Explanatory Narrative:

Fee Simple Reservation

Expiration Date:

Public Access: Unrestricted

Treatment

Approved Treatment: Restoration

Approved Treatment Document: General Management Plan

Document Date: April 30, 2002

Explanatory Narrative:

In the Mojave National Preserve General Management Plan (2002), Alternative #1, the “Environmentally Preferable Alternative,” states “Alternative 1 will protect and enhance natural and cultural resources by laying out strategies, planning, inventorying and monitoring, and restoring disturbed ecosystems and historic resources.” Although Zzyzx Mineral Springs is not specifically mentioned in this alternative, if found to be eligible for the National Register of Historic Places, the district would be considered a “cultural resource.”

Approved Treatment Completed: No

Approved Treatment Cost

LCS Structure Approved

Treatment Cost:

Landscape Approved

Treatment Cost:

Cost Date:

Level of Estimate:

Cost Estimator:

Explanatory Description: No approved treatment costs are associated with the LCS.

Stabilization Costs

LCS Structure Stabilization Cost: \$81,236

Landscape Stabilization Costs:

Cost Date: June 1, 1999

Level Of Estimate: C - Similar Facilities

Cost Estimator: Contractor

Explanatory Description: This stabilization cost estimate was produced for the Rabbit and Pool Houses by the contracting firm of ARG. .

Documentation Assessment and Checklist

Documentation Assessment: Poor

Documentation:

Document: Other

Year Of Document: 2002

Amplifying Details: Annual Performance Plan

Adequate Documentation: No

Explanatory Narrative:

Zzyzx is mentioned within the context of needing to have 2 of 70 historic structures in good condition

Document: General Management Plan

Year Of Document: 2002

Adequate Documentation: Yes

Explanatory Narrative:

Zzyzx Mineral Springs is mentioned and noted for evaluation under the following sections: nonnative plants, cultural landscapes, national register properties, archeological resources, facilities and development, and education and research partnerships.

Appendix

Bibliography

Citations:

Citation Author: Duffield-Stoll, Anne Q.
Citation Title: Zzyzx: History of an Oasis
Year of Publication: 1994
Publisher: Santa Susana Press
Source Name: PGSO
Citation Type: Both Graphic And Narrative
Citation Location: PGSO, Cultural Resources Library

Citation Author: Ashby, Alan
Citation Title: 'Medicine Man's' Resort Confiscated'
Year of Publication: 1974
Source Name: San Bernardino Sun-Telegram, April 12, 1974
Citation Type: Narrative

Citation Title: "Bureau of Investigation: Curtis Howe Springer; A Quack and His Nostrums"
Year of Publication: 1935
Source Name: Journal of the American Medical Association
Citation Type: Narrative
Citation Location: Vol. 105, No. 11, September 14, 1935, pp. 900-902

Citation Author: Casebier, Dennis
Citation Title: Carleton's Pah-Ute Campaign
Year of Publication: 1971
Publisher: Norco: Tales of the Mojave Road Publishing Company
Citation Type: Narrative
Citation Location: Tales of the Mojave Road, No. 1

Citation Author: Henscher, Alan
Citation Title: Ghost Towns of the Mojave Desert: A Concise and Illustrated Guide
Year of Publication: 1991
Publisher: California Classics Books
Source Name: PGSO
Citation Type: Narrative

Citation Author: Hillinger, Charles
Citation Title: Radio Evangelist Seized on Food, Drug Charges; State Health Department Files 65 Counts Against Curtis Howe Springer
Year of Publication: 1968
Source Name: Los Angeles Times, November 8, 1968
Citation Type: Narrative

Citation Title: Zzyzx: BLM's New Dilemma
Year of Publication: 1974
Source Name: San Bernardino Sun-Telegram, May 12, 1974.

Citation Title: Ready to Argue from A to Zzyzx; 'Squatter' Owes Rent, U.S. Says
Year of Publication: 1967
Source Name: Los Angeles Times, July 14, 1967
Citation Type: Narrative

Citation Author: Holt, Graydon E., Hearing Examiner
Citation Title: "Decision, United States of America, Contestant, v. Curtis H. Springer, et. al., Contestees, Contest Nos. R-1888 and R-1907, July 6, 1971,"
Year of Publication: 1971
Source Name: Hearings Division, Office of Hearings and Appeals, U.S. Department of the Interior, 2800 Cottage Way, Sacramento, California, 95825
Citation Type: Narrative
Citation Location: Copy in the archives of the Mojave Desert Heritage and Cultural Association, Goffs, California

Citation Author: Myrick, David F
Citation Title: Railroads of Nevada and Eastern California
Year of Publication: 1963
Publisher: Howell-North Books
Source Name: PGSO

Citation Title: "Natural Soda; Plant and Operations of the Pacific Coast Soda Company in the Sink of the Mohave River"
Year of Publication: 1908
Source Name: American Mining Review, Vol. XXIV, No. 3, Los Angeles, August 8, 1908

Citation Author: Ringle, William
Citation Title: "Dr. Springer Loses Fight for Land"
Year of Publication: 1974
Source Name: San Bernardino Sun-Telegram, October 18, 1974.

Citation Author: Roberts, Steven V
Citation Title: "Zyzzx's Visitors Bathe in Springs and Advice"
Year of Publication: 1970
Source Name: The New York Times, July 7, 1970

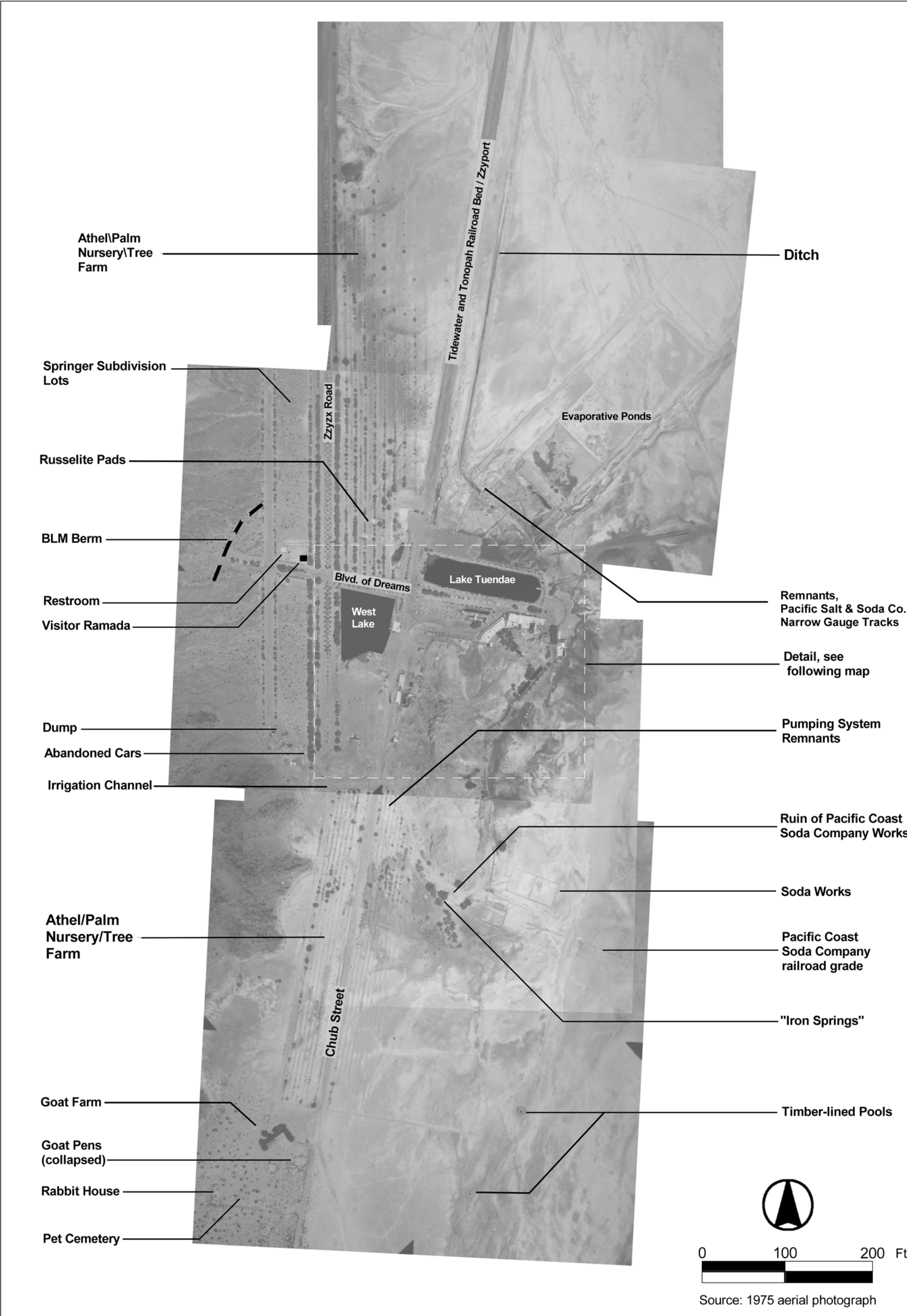
Citation Author: Springer, Curtis Howe,
Citation Title: letter, August 1, 1973, on stationery of "George W. Wilsson, Lawyer, Los Angeles, California," to the Honorable Jerry Pettis, Congressman from California, 417 Cannon Building, Washington, D.C. 20515, 24 pp.
Year of Publication: 1973
Source Name: Mojave Desert Heritage and Cultural Association
Citation Location: Copy in the Archives of the Mojave Desert Heritage and Cultural Association, Goffs, California

Citation Author: Whipple, 1st Lieutenant Amiel Weeks
Citation Title: Report of Explorations for a Railway Route, Near the 35th Parallel of North Latitude, From the Mississippi River to the Pacific Ocean
Year of Publication: 1856
Publisher: War Department
Source Name: PGSO

Citation Author: Williamson, 1st Lieutenant Robert S.
Citation Title: Exploration and Surveys for a Railroad Route from the Mississippi River to the Pacific Ocean
Year of Publication: 1853
Publisher: War Department
Source Name: PGSO

Citation Author:	Jackson, Robbyn
Citation Title:	Soda Springs National Historic Register Nomination
Year of Publication:	1997
Source Name:	PGSO
Citation Type:	Graphic
Citation Location:	PGSO Library

Supplemental Information





United States Dept. of the Interior
National Park Service
Pacific Great Basin Support Office
Oakland, CA

Site Map #2 - Detail
Zzyzx Mineral Springs Historic District
Cultural Landscape Inventory, Level II
Mojave National Preserve
Baker, CA

Revisions	
Date	Initials
03/13/00	SP
03/23/00	SP
03/12/02	

